PROVINCE OF SASKATCHEWAN

08-09

ANNUAL REPORT

MINISTRY OF ENVIRONMENT

State of Drinking Water Quality in Saskatchewan

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Note: An electronic copy of this document is available online at: http://www.SaskH2O.ca/news.asp

Letters of Transmittal

July 2009

The Honourable Gordon L. Barnhart
Lieutenant Governor of Saskatchewan

I respectfully submit the Annual Report on the State of Drinking Water Quality in Saskatchewan for the fiscal year ending March 31, 2009.

The Government of Saskatchewan carefully measures each commitment they make and carefully counts each commitment they have kept. This government is committed to delivering and building on its promises to Saskatchewan people and one of those promises is a commitment to increased transparency and accountability.

The initiatives pursued in 2008-09 and the results achieved, are communicated to the legislature and to the Saskatchewan people through this report. The results achieved within government's first year provide a foundation for establishing priorities and influencing government's future activities. Therefore, the annual reports are not only an important accountability document, but they can help to inform future planning and resource allocation in the upcoming years.

The 2008-09 Annual Report demonstrates progress towards the commitments that relate to drinking water and source water protection activities of involved ministries and agencies as of March 31, 2009.

Government has defined its direction for ministries and agencies and has communicated this direction through a vision and goals released with the 2009-10 Budget. Ministries and agencies have aligned with this direction and have developed strategies and actions to help deliver on government's plan for Saskatchewan – to be Strong and Steady in the years to come.

Respectfully submitted,

Nancy Heppner
Minister of Environment

July 2009

To Minister Nancy Heppner
Ministry of Environment

I respectfully submit the Annual Report on the State of Drinking Water Quality in Saskatchewan for the fiscal year ending March 31, 2009. I acknowledge responsibility for this 2008-09 report and declare the information contained within this report is accurate and reliable.

The 2008-09 report describes the drinking water related activities of ministries and agencies involved in drinking water and source water protection activities in Saskatchewan. Key partners in protecting and improving Saskatchewan drinking water supplies and source waters include the Ministry of Environment, Ministry of Health, Regional Health Authorities, Saskatchewan Watershed Authority, SaskWater, the Ministry of Municipal Affairs and the Ministry of Agriculture.

On behalf of the key partners, the Ministry of Environment provides information on our collective accomplishments in the protection, conservation and sustainable development of drinking water and related source water resources during 2008-09.

The province is committed to ensuring our rural communities and cities are engaged and supported as partners in the management of our groundwater and watersheds to maintain healthy water and ecosystems. The province will continue to prevent and reduce risks to the health of people and the environment and to ensure safe and sustainable drinking water and wastewater.

Fresh, clean water is essential for a high quality of life in our province. People all across Saskatchewan need to know they have access to safe and reliable water now and in the future. Together, ministries and agencies continue to build a secure and prosperous Saskatchewan.

Respectfully submitted,

Elizabeth Quarshie
Deputy Minister

Introduction

This annual report presents the activities and results of various agencies in managing drinking water in Saskatchewan for the fiscal year ending March 31, 2009. It reports on public commitments made and other accomplishments of ministries and agencies engaged in drinking water management in Saskatchewan.

The 2008-09 Annual Report follows a similar format to the 2007-08 Annual Report and also includes the government's vision and goals. The 2008-09 Annual Report on the Status of Drinking Water also sets the stage for the 2010-11 planning and budget process by providing an opportunity to assess the accomplishments, results and lessons learned, and identifying how to build on past successes for the benefit of Saskatchewan people.

This is the seventh Annual Report on the Status of Drinking Water in Saskatchewan. This report is intended to inform residents of Saskatchewan of the status of drinking water quality, waterworks infrastructure, source water protection and water-related items and measures in the province over the April 1, 2008 to March 31, 2009 period. The report is a legislated requirement under *The Environmental Management and Protection Act, 2002* and will be provided on an annual basis in future years.

Safe drinking water is a vital component in the protection of public health and disease prevention and therefore essential for the health and well-being of Saskatchewan's citizens. High quality water is important in maintaining natural ecosystems and the species that depend upon them, the productivity of industry, sustaining commerce and is vital to ensure sustainable growth in the province. The quality of drinking water, the condition of systems that produce it and protection of source waters remains an important public health and environmental issue in Saskatchewan at the present time and for the future.

The report outlines the roles, responsibilities and resources of ministries and agencies involved in water management, the regulatory framework and activities undertaken by the Government of Saskatchewan to manage drinking water. The report also discusses operator certification, drinking water quality monitoring, source protection, information management systems and public education initiatives which are key actions and indicators of performance in improving drinking water quality in Saskatchewan. A progress update in addressing the Report of the Commission of Inquiry recommendations into the City of North Battleford's drinking water is available on the internet at (http://www.northbattlefordwaterinquiry.ca/inquiry/inquiry.htm).

The report was built on contributions from Saskatchewan Ministries of Environment, Health, Municipal Affairs and Agriculture, as well as material provided by the Saskatchewan Watershed Authority and SaskWater. The Saskatchewan Ministry of Environment's Drinking Water Quality Section compiled the report.

Alignment with Government Direction

The actions undertaken to protect and sustain drinking water and source water in the future align with government's vision and three goals:

Our Government's Vision

A secure and prosperous Saskatchewan, leading the country in economic and population growth, while providing a high quality of life for all.

Government's Goals

- Sustain economic growth for the benefit of Saskatchewan people, ensuring the economy is ready for growth and positioning Saskatchewan to meet the challenges of economic and population growth and development.
- Secure Saskatchewan as a safe place to live and raise a family where people are confident in their future, ensuring the people of Saskatchewan benefit from the growing economy.
- Keep government's promises and fulfill the commitments of the election, operating with integrity and transparency, accountable to the people of Saskatchewan.

Together, all ministries and agencies support the achievement of government's three goals, and work towards a secure and prosperous Saskatchewan.

An Overview of Drinking Water Management in Saskatchewan

Since the waterborne disease outbreaks of May 2000 in Walkerton, Ontario and spring 2001 in North Battleford, Saskatchewan, the Government of Saskatchewan has heightened and focused efforts to improve drinking water supplies and protect source waters in the province. The intent of these efforts is also to provide safe drinking water. These actions are also intended to reassure the citizens of the province that government is helping to ensure the water we drink is safe.

Several ministries and agencies are involved in the governance and protection of drinking water supplies and source waters in Saskatchewan including the Ministry of Environment, Ministry of Health, Regional Health Authorities, Saskatchewan Watershed Authority, SaskWater, Ministry of Municipal Affairs and the Ministry of Agriculture. The following is a summary of the major roles, priorities and actions of each of the government ministries and agencies involved in drinking water management and source water protection.

Saskatchewan Ministry of Environment

- leads ongoing planning, implementation and reporting associated with drinking water governance and management to which all participating ministries and agencies contribute;
- implements, inspects and regulates compliance for 581 licensed municipal waterworks, 52 permitted pipelines, 36 regional or provincial park waterworks, 24 industrial waterworks, 66 other permitted waterworks (such as trailer courts, institutions and Hutterite colonies) and 573 wastewater facilities under *The Water Regulations, 2002*;
- issues permits for construction and operation of water and wastewater works;
- develops policies, protocols, water quality standards and guidelines to support protection of drinking water and implementation of *The Water Regulations, 2002*;
- liaises with the Operator Certification Board (OCB);

- manages the Ministry of Environment's drinking water information system Environmental Management System (EMS) that houses water quality and inspection data for all Ministry of Environment regulated waterworks and wastewater works in the province;
- monitors surface water quality at primary surface water quality stations across the province; and
- manages the www.SaskH2O.ca website that supplies a broad range of drinking water related information gathered from water management authorities within the province.

Saskatchewan Ministry of Municipal Affairs

- for 2008-09, provided financial assistance for water infrastructure under the Canada-Saskatchewan Municipal Rural Infrastructure Fund (MRIF), the Canada-Saskatchewan Building Canada Fund - Communities Component (BCF-CC), the Saskatchewan Infrastructure Growth Initiative (SIGI) and the Northern Water and Sewer Program;
- the Canada-Saskatchewan Infrastructure Program (CSIP) was transferred to the Ministry of Highways and Infrastructure as per Order in Council on November 21, 2007;
- legislates and regulates pricing policies and capital investment strategies for municipal waterworks; and
- legislates and regulates municipal protection of water sources through planning bylaws.

Saskatchewan Watershed Authority

- monitors source (surface/ground) water;
- leads watershed and aquifer planning;
- owns, operates and maintains water management infrastructure;
- provides waterworks source water approval (except municipal);
- allocates groundwater and surface water for use; and
- develops and provides State of Watershed Reporting.

Saskatchewan Ministry of Health/Health Regions

- inspects for compliance at semi-public waterworks and certain other waterworks as required by *The Health Hazard Regulations*;
- manages data systems for Public Health Inspectors and laboratory information;
- analyses water through the Saskatchewan Disease Control Laboratory; and
- provides advice and addresses waterborne illnesses.

Saskatchewan Ministry of Agriculture

- has responsibility under *The Agricultural Operations Act* for intensive livestock provisions;
- administers *The Irrigation Act, 1996* and provides water related advice;
- provides pesticide (applicator) licenses;
- conducts research, demonstrations and technology transfer;
- provides advice on farm water supplies; and
- coordinates Environmental Farm Planning (Federal/Provincial Growing Forward Agreement).

SaskWater

- provides potable and non-potable water supply;
- provides wastewater treatment and management;
- designs, builds, owns and operates water supply and wastewater systems;
- provides certified operation and maintenance for customer-owned systems; and
- provides project management services and operator training.

The Ministry of Environment, Ministry of Health and the individual Regional Health Authorities deliver water and wastewater programming and governance through a system of centralized planning, protocol and standards development and regionalized inspection and compliance services. During 2008-09, the Ministry of Environment's staff complement totaled 36.7 Full Time Equivalents (FTE) for delivery of all aspects of the

ministry's drinking water and wastewater management activities. An additional three FTEs are employed by the Ministry of Environment in the management of the Environmental Management System and the SaskH20 website. Ministry of Health's Saskatchewan Disease Control Laboratory has 17.5 FTEs that are dedicated to water testing and the accreditation program in support of the Safe Drinking Water Strategy. Health Region Public Health Inspectors, Medical Health Officers and Public Health Nurses also play a role in water related activities (i.e. inspection of semi-public water supplies, issuance of Emergency Boil Water Orders (EBWO) and water borne disease investigations).

The Ministry of Agriculture has 10 FTEs that deliver intensive livestock inspection and regulatory approval services to ensure protection of water resources from intensive livestock operations. Two additional full time positions provide technical assistance to address environmental issues related to livestock development and abattoir waste management. Ministry of Agriculture staff continues to participate in the Aquifer/Watershed planning activities and technical committees. The ministry also develops and distributes management and technology information for conservation and grazing and crop production that reduce and/or minimize impacts to water resources. The ministry has three FTEs delivering pesticide regulatory services.

The *Pest Control Products (Saskatchewan) Act* and regulations require any individual who uses or applies a pesticide to hold a valid pesticide applicator license. An applicant for a pesticide applicator license must pass a pesticide applicator course, which is valid for five years. The Business and Entrepreneurial Studies Division of the Saskatchewan Institute of Applied Science and Technology (SIAST) offer pesticide applicator courses. Education is highly valued for all pesticide users to mitigate the risks associated with pesticide usage. Training is recognized internationally as a key tool in risk reduction. Training results in more responsible use of pesticides while keeping the environment safe for the public. There are currently 2,339 licensed applicators in the province.

The Ministry of Agriculture administers *The Irrigation Act, 1996*. The legislation ensures soils and water are suitable for sustainable irrigation. Irrigation soils, water quality and water tables are monitored for sustainability.

The Ministry of Municipal Affairs water-related programming is mainly provided through centralized policy development and program delivery services.

Key partners outside the provincial government include the federal government through the Building Canada Fund, Canada-Saskatchewan Municipal Rural Infrastructure Fund, Federal Gas Tax program, participants in the Growing Forward Agreement, municipalities and other waterworks owners, the Saskatchewan Urban Municipalities Association (SUMA), the Saskatchewan Association of Rural Municipalities (SARM), the Saskatchewan Water and Wastewater Association (SWWA) and the Operator Certification Board (OCB). SWWA and the OCB have been instrumental in advancing waterworks operator certification in the province. The OCB is appointed by government, but operates at arm's length in considering the qualification and standing of water and wastewater works operators in the province. Key stakeholders are consulted on a periodic basis to aid in the ongoing development and delivery of drinking water and wastewater related programming and activities of the Government of Saskatchewan.

The sections of the report that follow provide information on the status of drinking water in Saskatchewan during 2008-09. Further information on drinking water quality is available on the SaskH2O website (http://www.SaskH20.ca) and on the Ministry of Environment's website (http://www.environment.gov.sk.ca). Additional detailed background information regarding drinking water quality in Saskatchewan is available at http://www.SaskH2O.ca/news.asp. http://www.SaskH2O.ca/MyDrinkingWater.asp The following sections also report on the key actions and the level of performance in achieving key indicators for the improvement in drinking water and related protection and enhancement measures.

Transparency regarding the status of drinking water is intended to improve trust in drinking water supplies and the waterworks systems that produce it. Public reporting is intended to further the accountability of the ministries and agencies that manage and govern drinking water in the province.

Progress in 2008-09

This section presents the key results, activities, accomplishments and outcomes in 2008-09 relating to the protection and status of drinking water in Saskatchewan. The results in this section support the achievement of government's goals as identified in the "Alignment with Government Direction" section and the more specific key areas relating to drinking water that follow. This section is divided into two parts: Significant Achievements in 2008-09 and Progress by Key Area.

Ministries and agencies engaged in drinking water management in Saskatchewan use performance information to assess overall progress towards improving the safety and management of drinking water in the province. In turn, reviews and assessments each year allow and direct the most effective adjustment of future plans and actions to address priority elements. Management affirms that all major external factors that could have an impact on performance results have been identified and explained. Additionally, significant efforts have been made to ensure performance data is valid through ongoing review and validation of data. In general, performance in addressing drinking water quality and source water protection management in Saskatchewan has paralleled or exceeded performance of other Canadian provinces where similar strategic initiatives are in place.

The results for key actions provided below are organized by common activities focusing on various components of drinking water and source water protection and followed by a report on actual progress for each.

Significant Achievements in 2008-09

The following is a summary of the most significant achievements relating to drinking water and source water status and protection in Saskatchewan in 2008-09 by the various ministries and agencies engaged in water management in Saskatchewan. Further information is available by contacting the Ministry of Environment or on the internet at www.SaskH2O.ca.

- The Ministry of Environment assisted the Association of Boards of Certification (ABC) in producing Canadian exams for water treatment and water distribution. This included reviewing all formulas and measures to ensure they were properly converted to the metric system and reviewing question banks from which the new exams will be drawn.

- The Ministry of Environment continued to support, in a technical advice capacity, federal-provincial grant review committees reviewing applications for Saskatchewan based infrastructure grants. This helps to ensure drinking water meets water quality standards and the overall goals of safe drinking water are advanced.

  To secure longer term municipal infrastructure funding, Saskatchewan and the federal government signed an Infrastructure Framework Agreement on April 11, 2008 that commits Canada to invest a minimum of $635 million in Saskatchewan over seven years. The BCF-CC, which is one program under the agreement, will provide a total of $189 million in federal-provincial funds to Saskatchewan communities with populations under 100,000. To-date, provincial funding of $31.6 million was spent, of which $25.7 million was for 31 water and waste water projects. Ministry of Municipal Affairs will consult with municipalities during negotiations with the federal government to determine appropriate distribution

of funds towards water and sewer projects through the Communities Component Agreement over the next seven years.

- The Ministry of Environment participated as a member of the Federal-Provincial Committee on Drinking Water during 2008-09. During that time, another review of national guidelines on turbidity, protozoa, viruses, bacteria (total coliform and *Escherichlia coli*) was initiated, given the ongoing significance of these parameters to human health. Guidelines or guidance documents were completed for boil water advisories, corrosion control, benzene, water avoidance and chlorine. National drinking water guidelines were initiated or ongoing for nitrosodimethylamine, dichlormethane, fluoride, bromodichloromethane, lead and uranium. The bromodichloromethane guideline, developed in 2007-08, will be eliminated in 2009-10 due to new emerging scientific information. These national guidelines form the basis for drinking water quality standards in Saskatchewan and other jurisdictions across Canada.

- The Saskatchewan Watershed Authority led implementation of water conservation practices. As part of the Go Green Strategy, the province announced the Provincial Toilet Replacement Rebate Program in January of 2009. The program provides funding of $11.2 million over four years to replace existing residential toilets with low or dual flush toilets. This program is an important vehicle to increase water use efficiency and educate the public on the need to conserve water.

- SaskWater implemented a Supervisory Control and Data Acquisition (SCADA) system in 34 of SaskWater's owned and contracted systems. SaskWater uses the SCADA system to remotely monitor these systems to improve water quality, monitor infrastructure, reduce risk and enhance operating efficiencies in 34 systems across the province 24 hours a day 365 days a year.

- In 2008-09, $4.7 million in provincial funding was spent under the Northern Water and Sewer Program in 18 communities, of which $1.9 million was Canada-Saskatchewan Municipal Rural Infrastructure Fund (MRIF) and Canada-Saskatchewan Infrastructure Program (CSIP) funding. Under the Northern Emergency Program, $97,000 was spent in nine communities on northern water and sewer system repairs that arose during the year. Also, $499,000 was spent on engineering operating and maintenance advice to northern communities on water and sewer systems. A list of the communities funded under the Northern Water and Sewer Program and the Northern Emergency Program is provided on the internet (http://www.saskh20.ca/WaterInformationFactSheet_annualreport.asp)

- To continue water and wastewater related funding in 2008-09 under MRIF, $2.4 million in federal and provincial funding was approved for five water and sewer projects and $18.945 million was paid out to 75 water and sewer projects under the program. Under BCF-CC, $51.4 million in federal and provincial funding was approved for 31 water and sewer projects and $25.7 million was paid out provincially to these 31 projects under the program. Under SIGI, eight water and sewer projects worth $14.1 million were approved to receive interest rate subsidies on borrowing for these projects and $171,000 was paid out to six water and sewer projects under the program. A list of 2008-09 approved projects for MRIF, BCF-CC and SIGI water and sewer projects are available on the internet (http://www.SaskH2O.ca/WaterInformationFactSheet_annualreport.asp).

- The Ministry of Environment implemented regulatory revisions which reduced the frequency of waterworks system assessments at small and very small municipal waterworks reliant on secure groundwater sources to minimize regulatory burden on these small facilities. Educational material was developed and provided to waterworks owners to advise them of this change. The ministry also revised its standards for waterworks system assessments for those systems still required to perform assessments to aid owners in understanding what will be required for round two of the assessments due by December 31, 2010. The revised standards were posted on the internet (http://www.SaskH2O.ca/DWBinder/EPB233WaterworksSystemAssessmentStandards.pdf).

- The Ministry of Environment continued to conduct waterworks inspections in accordance with the ministry inspection protocol and targets. A total of 871 waterworks inspections were conducted during the reporting period. During waterworks inspections, the Environmental Project Officers (EPOs) stress the need for activities or upgrading to meet drinking water quality standards and requirements. During 2008-09, added emphasis was placed on meeting upset reporting requirements, compliance with chlorine residual requirements and the turbidity standards for waterworks serving less than 5,000.

- During 2008-09, a total of 131 unexpected upsets at waterworks regulated by the Ministry of Environment were reported and addressed such as system depressurizations due to power loss or water main breaks, low chlorine residuals, excessive turbidity/operational problems, positive bacteriological monitoring results, chemical contamination or other failures and resulted in issuance of a Precautionary Drinking Water Advisory (PDWA) or Emergency Boil Water Order (EBWO).

- A total of 79 PDWAs were issued due to anticipated events such as startup of seasonal or new waterworks or planned maintenance activities.

- A total of 493 inspections at wastewater works were completed by Ministry of Environment staff during the 2008-09 reporting period. Information gained from the comprehensive inspection results is useful in protecting source water, aquatic habitat and will also continue to be used to advance wastewater management in the province. Information gained during these inspections will also aid implementation of the initial characterization process for the Canada-wide Strategy for Municipal Waste Water Effluent (MWWE) in the future. A total of 66 additional wastewater works operational permits were issued, renewed or amended in 2008-09.

- Ministry of Agriculture requires intensive livestock operations to develop waste storage and management plans that will not contaminate water resources and in 2008-09, there were 13 approvals issued for these operations. Some approvals were for expansions and/or modifications to existing operations. Surface water quality monitoring of watercourses adjacent to intensive livestock operations is continuing. The 2003 Surface Water Quality Monitoring Report is available on the internet (http://www.agriculture.gov.sk.ca/Default.aspx?DN=ab517097-0749-4293-b98e-dbe1935deefa).

- The Ministry of Environment continued as "champion" and "chair" of the Canadian Council of Ministers of the Environment (CCME) – Development Committee charged with development of a Canada-Wide Strategy for MWWE. In February 2009, the Canada-Wide Strategy for MWWE was endorsed by all but three provinces or territories across Canada (http://www.ccme.ca/ourwork/water.html?category_id=81). Late in 2009, a working group was established through the CCME to lead and track the strategy's implementation in a nationally consistent manner. Federal *Fisheries Act* regulations consistent with the direction of the Canada-Wide Strategy developed by the federal government.

- Ministry of Agriculture provides funding through the Agriculture Development Fund to support research and development, including agricultural technologies for improved management and/or reduced environmental risks of pesticides, fertilizers and livestock manure. In the past year, there were eight ongoing water related projects with a total funding allocation of approximately $911,000. Projects were in the areas of irrigation agronomy and technology, water quality, watersheds and wetlands.

- A national survey by Probe Research Inc. in September 2008 showed that 56 per cent of Saskatchewan residents said that their water is safer than in 2000. Saskatchewan rated amongst the highest of all Canadian provinces on drinking water safety.

Key Area: Waterworks systems and operations provide safe, clean and sustainable drinking water

Theme: Waterworks staff are capable and well-trained

Provision of safe drinking water is highly reliant on the knowledge and capabilities of waterworks operators and the manner in which they apply their skills to produce and monitor the quality of drinking water. Along with source protection, sound and capable infrastructure and water quality monitoring; knowledgeable operators capable of sound waterworks operations are one of the elements of a "multi-barrier approach" to ensure safe drinking water. The following is a summary of activities which were conducted during 2008-09 and the related achievements in working to ensure that waterworks staff are capable and well-trained.

Results – Operator Certification

- The Ministry of Environment facilitated operator certification by encouraging the SIAST, Advanced Technologies Applications (ATAP) Infrastructure Management and some of the regional community colleges to continue offering certification preparation classes. Continuing Education Units (CEUs) are assigned to operators attending these classes, where 1.0 CEU represents 10 hours of formal classroom instruction. Successful completion of the certification examinations allows operators to meet one of the certification criteria; the other criteria are formal education and facility work experience.

- Operator certification and continuing education requirements are always reviewed and discussed during each waterworks and sewage works inspection to help ensure operators remain current with certification requirements.

- During 2008-09, approximately 70 per cent of operators receiving renewal notification from the OCB actually renewed their certification. In contrast during 2007-08, 71 per cent of operators renewed their certification on notification by the OCB. This drop in renewal in comparison with the 2007-08 fiscal year is caused in part by late applications for renewal by operators and a higher rate of retirements by operators. Incidentally, 76 late renewal applications were received by the OCB during the first month of the 2008-09 fiscal year.

- The Ministry of Environment has contributed to workshops and conferences offered by SWWA, Saskatchewan Association of Rural Water Pipelines (SARWP), New North and First Nations.

- During the reporting period the Ministry of Environment worked with the Provincial and Territorial Water and Wastewater Certifying Authority towards the Agreement in Trade providing reciprocity across Canada for all certified water and wastewater operators.

- Recently federal funding for the National Occupational Guidelines for Canadian Water and Wastewater Operators (NOG) was abolished, leaving the Ministry of Environment without an integral component of their Operator Certification Renewal Process. The Ministry is presently reviewing the comparative study between the NOG and the Association of Boards of Certification (ABC) Need to Know Criteria for Water and Wastewater Operators that the ABC prepared to determine the path forward for renewed certification criteria in Saskatchewan.

- The Ministry of Environment continued to liaise with SIAST on the content and requirements for operator training in Saskatchewan as a way to ensure educational opportunities meet the needs of waterworks operators in the province.

- The Ministry of Environment directly supported training opportunities including aiding in the organization of the northern water workshop in April 2008 and support to the SWWA for their midterm membership meeting in June 2008 and annual convention in November 2008. Ministry staff also supported SWWA by providing instruction during operator training workshops. The ministry also contributed to the annual SARWP conference in December 2008.

- In terms of overall progress on operator certification, the OCB continued to certify water and wastewater works operators throughout 2008-09. As of March 31, 2009, there were 675 waterworks licensed by Ministry of Environment with at least one certified operator, regional operator or contract operator (see Table 1). Certification trends for 2008-09 continued to show an increase in the number of waterworks with at least one certified operator. Some operators continue to take exams and are in the process of obtaining certification or of upgrading their certification levels and categories. Ministry of Environment continues to work with municipalities, waterworks owners and others to maintain and to advance the implementation of operator certification and continuing education in the province.

  Table 1 provides additional trend information on the number of waterworks with certified operators since 2000-01 for all waterworks regulated by Ministry of Environment.

Table 1: Summary of certification trends for water and wastewater works since 2000-01

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Certified operators*	44	293	403	533	682	1107	1170	1223	1231
All Waterworks with certified operators	24	116	217	219	326	532	614	638	675
All Waterworks meeting new certification standards	1	35	92	144	202	461	501	521	569
Per cent meeting new certification standard**	0.2%	5.7%	15%	23%	35%	74%	80%	82%	84%
Number of licensed works**	609	609	617	630	641	714	728	724	765
Number of Hygienic Works not Requiring Certified operators	N/A	N/A	N/R	N/R	N/R	92	101	107	114

* Operators working in Ministry of Environment regulated waterworks.
**Licensed works includes municipal water treatment works, water distribution systems, wastewater treatment works and wastewater collection systems. These values exclude hygienic waterworks that do not require a certified operator
N/A: Not Applicable.
N/R: Not Recorded.

Source: Operator Certification Board database and Ministry of Environment hygienic waterworks listing

Table 2 provides information on the number of operators certified at various levels in all categories of the water and wastewater treatment industry in Saskatchewan during 2008-09.

Table 2: Distribution of certified operators at water and wastewater works - fiscal year 2008-09

System Classification[1]	Water Treatment	Water Distribution	Wastewater Treatment	Wastewater Collection
Small System[2]	213	213	118	118
Class-1	381	476	428	393
Class-2	295	291	95	133
Class-3	63	15	20	7
Class-4	41	19	28	13
Total	993	1014	689	664

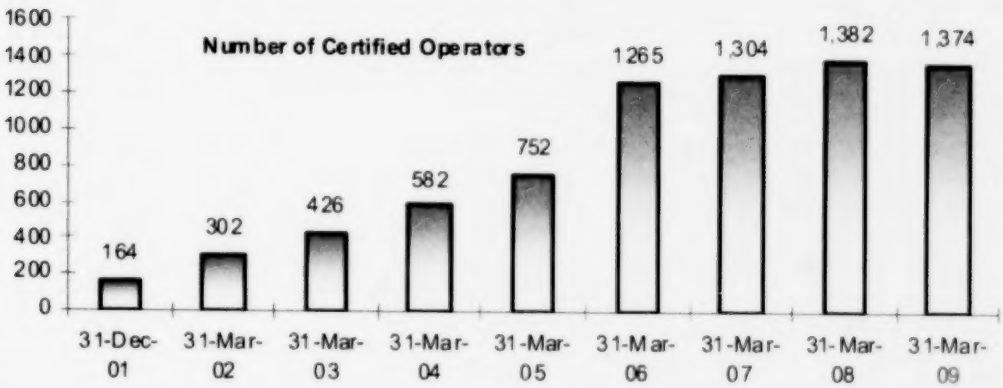
[1] Waterworks system classification is defined by the complexity and size of the waterworks in accordance with standard parameters adopted from the ABC. More information on waterworks system classification is available from the Operator Certification Standards EPB139 (see http://www.SaskH2O.ca/DWBinder/EPB139OperatorCertificationStandards2002.pdf).

[2] There are several types of Small Systems. A Small Water System is defined as a Class-1 groundwater treatment and/or Class-1 distribution system, serving fewer than 500 people. Small treated drinking water pipelines serving fewer than 500 people can be classified as Small Systems and some of their operators have become certified as Small System operators and are shown only under Water Distribution. A Small Wastewater System is a Class-1 wastewater treatment system (generally a lagoon system) and/or a Class-1 collection system serving fewer than 500 people.

Source: Operator Certification Board Database

Figure 1 provides a historical summary of the number of operators certified to date. During 2008-09, the number of all certified operators reported by the OCB is 1,374 was of March 31, 2009. These are all the certified operators, including those who do not operate waterworks regulated by Ministry of Environment. Indian and Northern Affairs Canada (INAC) required First Nation operators to become certified by the same criteria of education, experience and examination as operators mandated by Ministry of Environment. Since INAC did not have a certification program of its own, Ministry of Environment invited the First Nations operators to participate in its certification program and 135 were certified at the end of this fiscal year. In addition, there are seven operators working in federal facilities such as parks or correctional centers.

Figure 1: Summary of certified operator trends



Source: Operator Certification Board certification records database

The number of certified operators applying for initial certification during the 2008-09 fiscal year was 137, and there were approximately 120 operators who applied to upgrade their certification by either increasing their level of certification or adding new categories of certification. A summary of communities with Certified Operators and Operator Classification, updated after each OCB meeting, is available on the internet (http://www.SaskH2O.ca/foroperators.asp).

Measurement Results

Per cent of communities with human consumptive waterworks whose operators have received some level of certification

Table 3: Per cent of communities with human consumptive waterworks whose operators have received some level of certification

	September 30, 2004	March 31, 2006	March 31, 2007	March 31, 2008	March 31, 2009	Annual Change (2008-09)
Per cent of communities with human consumptive waterworks whose operators have received some level of certification	54.3	96.8	98.9	99.2	99.2	0

Source: Ministry of Environment – Environmental Management System

As of March 31, 2009; 99.2 per cent of communities with human consumptive waterworks have operators that have achieved some level of certification (Table 3). This represents no change from the previous year when the same percentage of community waterworks had an operator certified to some level. Approximately 99.95 per cent of the population served by a community (municipal) human consumptive waterworks have an operator that has received full certification or some level of training (completed any approved training courses). Knowledgeable, certified operators help to ensure safe drinking water.

Compliance with operator certification and therefore achievement of this measure is primarily controlled by the owner of the waterworks, but also requires cooperation from the waterworks operator(s). Acceptance and uptake of operator certification is key to ensuring the delivery of safe drinking water and therefore a reason this measure was selected. As a point of comparison, Alberta's (population 3.2 million) mandatory certification program took effect on January 1, 1983 and its program currently has 1,831 certified operators. Currently their certification examinations, certification applications and certificate renewals are free. Saskatchewan (population approximately 1.0 million) has 1,374 certified operators, examinations cost about $80 and certification and renewal fees (every two years) are $150. Saskatchewan's certification program has progressed very much since its inception in 2000.

Theme: Infrastructure produces water that meets the national guidelines

Infrastructure design, capability, condition and maintenance are critical in the production of safe drinking water. Standards, incentives, requirements, compliance measures and implementation plans are also important to ensure that waterworks are operated and monitored to achieve drinking water of a quality that protects human health. The Guidelines for Canadian Drinking Water Quality (see: http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index_e.html) are used in Canada as the definitive measure of science-based safety criteria for drinking water. Saskatchewan has now adopted the

guidelines as standards (see: http://www.SaskH2O.ca/DWBinder/EPB207Drinking_Water_Standards_post.pdf). The following is a summary of activities which were conducted during 2008-09 and the related achievements in working to ensure that infrastructure produces water that meets national drinking water quality guidelines.

Results - Infrastructure produces water that meets the National Drinking Water Quality Guidelines

- During 2008-09, the Ministry of Environment continued to implement regulatory changes which fine tuned requirements for waterworks system assessments, implementation of hygienic water and sewage works-related operator certification, regional operator certification and other requirements. These changes were meant to ease the regulatory burden and provision of safe water at small communities. The Ministry also provided technical advice to several small communities throughout the fiscal year that aided in resolving operational and water quality concerns, resulting in safe drinking water. These activities and interaction with municipalities and owners will continue in 2009-10.

- The Ministry of Environment continued to track, report and follow-up with waterworks owners on compliance with sample submission and water quality standards. During 2008-09, the ministry developed a computer-based method of auditing compliance with sample submission requirements and achievement of disinfection residual requirements as a means to help assure compliance and accurate and transparent reporting.

- SaskWater continued to develop business proposals/solutions with its municipal and community clients focusing on growing its service areas through regional systems from which water services are delivered. This strategy allows for more cost-efficient and effective delivery of services compared to service provision on a one-off basis.

- In total, SaskWater owns seven water treatment plants, three waste water facilities, 35 water pump stations and over 800 kilometres of pipeline. Through this regional network, the company provided potable and non-potable water to 55 communities, 57 rural pipeline groups, 43 industrial customers, 57 rural pipeline groups and 201 single users and 13 other customers.

- SaskWater played a role in northern Saskatchewan; planning and managing the design and construction of water and wastewater infrastructure on behalf of the Ministry of Municipal Affairs. SaskWater continues to provide technical advice to northern communities for the expansion and maintenance of water and wastewater infrastructure, including responding to community emergencies related to that infrastructure. In the past year, SaskWater was involved in over 40 northern projects.

  SaskWater provided project management services for the Lac La Ronge Regional Water Corporation – Water Supply System on behalf of La Ronge, Air Ronge and the Lac La Ronge Indian Band. The new water supply system project includes the expansion of La Ronge water treatment plant, the conversion of Air Ronge's water treatment plant to a water distribution plant, construction of the new pipeline to connect the communities and modification to the water distribution system serving the Town of La Ronge, Village of Air Ronge and the Lac La Ronge First Nation.

  SaskWater provided services to the Sandy Bay Water Supply and Treatment project, which included building a new raw water pump station, installing a new raw water supply line and building a new water treatment plant. This project will supply potable water to the Northern Village of Sandy Bay and the Peter Ballantyne Cree Nation adjacent to Sandy Bay. Finally, SaskWater is the provincial technical advisor for the Wollaston Lake Sewage Pumping Station Upgrades which will service the Hatchet Lake Denesuline First Nation and the Northern Settlement of Wollaston Lake.

- SaskWater also worked on behalf of INAC to provide operator training to Saskatchewan First Nations. In 2008, SaskWater trained a total of 111 water and wastewater operators at 39 First Nations communities. With funding from INAC, SaskWater plans to add Big River, Witchekan Lake and Chitek Lake to the communities SaskWater remotely monitors in 2009.

- Ministry of Environment staff continued to advance information and materials to waterworks owners to move forward on compliance with the compliance timelines for drinking water quality such as the chemical/health water quality standards which took effect for waterworks serving more than 5,000 people in December 2008. Ministry staff also provided reminders and information for owners of smaller waterworks on the need to meet turbidity standards by December 2008. While significant progress has been made on meeting turbidity standards for waterworks serving 5,000 or less people, further work is necessary to assure compliance in 2009-10.

- During 2008-09, Ministry of Environment sponsored the University of Regina Water Use Study of the Rural Municipality of Edenwold. This study will be important in helping to sustain water quality and use in the area given significant demands being placed on the groundwater arising from residential growth in the area. A mid-year progress report was received as required and as of March 31, 2009 the ministry is awaiting the completion of the final study report.

- The Drinking Water Quality Section of the Ministry of Environment initiated an evaluation of haloacetic acid occurrence and impacts in selected Saskatchewan water supplies. This work was performed by University of Regina engineering students as a means to foster research and expertise development in the province.

- Ministry of Environment staff participated in workshops with the Communities of Tomorrow, the National Research Council, University of Regina and TRLabs to explore the potential for developing a water innovation centre in Saskatchewan. Supporting research and development of water and wastewater treatment systems for small communities is one way in which the ministry is working to sustain growth while assuring safe drinking water quality.

- The Ministry of Environment provided information on the provincial regulatory framework for drinking water and wastewater management to INAC and to Federation of Saskatchewan Indian Nations (FSIN) representatives. In February 2009, the ministry participated in an INAC organized engagement session with Saskatchewan First Nations to discuss a regulatory framework for drinking water for First Nations in the province.

- In 2008, SaskWater signed water supply agreements with three new customers. Additionally two new Certified Operations and Maintenance (COM) contracts were signed and two existing COM contracts were expanded.

In terms of the status of drinking water in Saskatchewan, the bacteriological quality of water is a critical element, because when the related standards are exceeded there is a possibility of rapid significant health effects for consumers. Implementation of water quality standards continues through permitting, inspection and follow-up on monitoring results. Saskatchewan uses coliform bacteria as an indicator of the quality of drinking water. Monitoring of drinking water for *Escherichlia coli* (*E. coli*) is increasing in prevalence in North America and the Ministry of Environment is tracking and implementing this change. The Saskatchewan Disease Control Laboratory and the Saskatchewan Research Council employed routine analysis for *E. coli* during the fiscal year to help improve the meaning and rapidity of monitoring results. Saskatchewan's standards for bacteriological drinking water quality are more stringent than the Guidelines for Canadian Drinking Water Quality. The ministry commenced examination of the potential for application of presence-absence testing methodologies for use in the province. The number of samples required for bacteriological

water quality monitoring of a waterworks is based on the number of people served by the system (see Municipal Drinking Water Quality Monitoring Guidelines at http://www.SaskH2O.ca/foroperators.asp) or directly to http://www.SaskH2O.ca/DWBinder/EPB202MunicipalDrinkingWaterQualityGuidelinesEdition3.pdf. When a routine water sample shows the presence of bacteria, follow-up activities including repeat sampling are performed. The Ministry of Environment issued five PDWAs and seven EBWOs during 2008-09 when bacteriological related problems arose at waterworks.

During 2008-09, there were 20,190 valid "Municipal Human Consumptive Use" routine bacteriological water quality samples submitted of which 172 samples (0.85 per cent) exceeded the water quality standards of zero total coliforms, zero fecal coliforms or greater than 200 background bacteria per 100 millilitres of water. During 2008-09, a total of 20,190 out of 18,854 (107.09 per cent) of the required regular samples for bacteriological water quality were submitted from waterworks regulated by the Ministry of Environment. During 2007-08, there were a total of 23,662 out of 22,839 (103.6 per cent) of the required regular samples for bacteriological water quality submitted from waterworks regulated by the Ministry of Environment. The decrease in total sample submission in 2008-09 reflects 89 municipal waterworks that have been granted hygienic status and are no longer included in this statistic and 180 facilities submitting more than 100 per cent of required samples during 2008-09.

There were 51 "Municipal Human Consumptive Use" waterworks in the province that exceeded the bacteriological standards at least one time during 2008-09. During the same period, there were eight waterworks that had more than 10 per cent of their routine bacteriological water samples show the presence of bacteria (Alida, Borden, Dinsmore, Golden Prairie, Kendal, Keystown, Tuxford and Wadena). See Figure 3 for more information on the performance of waterworks regulated by the Ministry of Environment in meeting bacteriological water quality standards.

Turbidity is a measure of the "cloudiness" of water and is an indirect measure of the number of suspended particles in water. Turbidity is a good indicator of the effectiveness of a water treatment system and is important because turbid water can harbor disease-causing organisms. If excessive turbidity is present, the effectiveness of disinfection of drinking water can be impaired. Turbidity monitoring of Ministry of Environment regulated waterworks is required at least on a daily basis as a means to track water treatment system performance.

The Ministry of Environment now has standards for turbidity consistent with the Canadian national standards for turbidity. These standards continue to be phased-in for existing waterworks and take effect upon the start-up of any new waterworks. During phase-in of the turbidity standards, the ministry generally applied a turbidity standard of 1.0 Nephelometric Turbidity Units (NTU) for existing waterworks.

During the 2008-09 fiscal year, on-site monitoring for turbidity and record keeping continued to be required and these records were checked during site inspections by EPOs.

Ministry of Environment staff continued to ensure that waterworks owners and operators track turbidity-monitoring results and manage turbidity related water quality problems. There were 10 PDWAs issued during 2008-09 when turbidity related problems arose at waterworks. Turbidity testing results are being reported in conjunction with information submitted with regular bacteriological samples.

The range of turbidity results tested by all agencies in 2008-09 (municipal, private and government owners) is shown in Table 4.

Table 4: Range of turbidity testing results – 2008-09

Turbidity Range (NTU)	Samples	Per Cent Samples	Systems*
0 – 1	22,467	91.70 %	648
1 – 2	1,196	4.88 %	255
2 – 3	392	1.60 %	111
3 – 4	197	0.80 %	67
4 – 5	115	0.47 %	33
5+	134	0.55%	60
Totals	24,501	100 %	

* Some systems had turbidities in more than one range of turbidity values.

Source: Ministry of Environment - Environmental Management System

Disinfection is widely used in Saskatchewan and Canada as one of the key methods to prevent the spread of waterborne disease. Most disinfection of drinking water in the province is performed using chlorine-based products. Waterworks regulated by the Ministry of Environment are required to maintain:

a) a free chlorine residual of not less than 0.1 milligrams per Litre (mg/L) in the water entering a distribution system; and
(b) a total chlorine residual of not less than 0.5 mg/L or a free chlorine residual of not less than 0.1 mg/L in the water throughout the distribution system.

Chlorine disinfectant monitoring usually includes two tests: total chlorine residual and free chlorine residual which are done from samples collected from the water distribution system. Free chlorine residual in drinking water is important in providing lasting protection in water distribution systems.

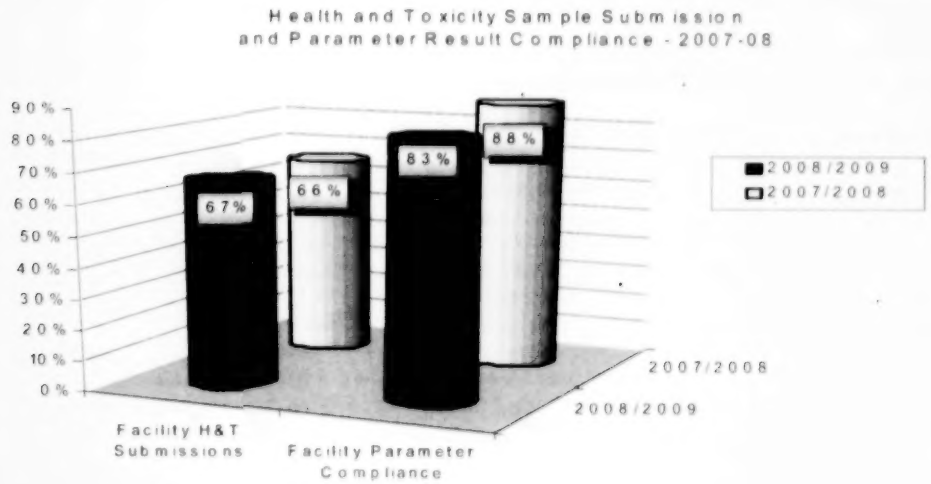
Total chlorine residual is helpful for waterworks operators to understand the effectiveness of disinfection and to judge cleanliness of the water distribution system. On-site monitoring for chlorine residual and associated record keeping is required and these records are checked during site inspections by Ministry of Environment's EPOs. During 2008-09, the ministry issued five PDWAs as a result of chlorination related concerns or problems at waterworks. Ministry staff continue to emphasize the need for waterworks operators to monitor and track chlorine residual as a means to help ensure water quality. Improved compliance with disinfection requirements has resulted in a reduction in the number of PDWAs or EBWOs being issued.

Chlorine residual test results are reported in conjunction with information submitted with regular bacteriological samples. These measurements are taken at the same location as for bacteriological sampling and represent chlorine residuals in the distribution system. As previously noted, a total chlorine residual of not less than 0.5 mg/L or a free chlorine residual of not less than 0.1 mg/L must be maintained in distribution system free chlorine or total chlorine residuals within regulatory limits 90 per cent of the time for an overall reported compliance rate of 96.31 per cent. See Figure 4 for more information on the performance of waterworks regulated by the Ministry of Environment in meeting disinfectant level requirements.

The Ministry of Environment used the Guidelines for Canadian Drinking Water Quality as the basis for the water quality standards found in *The Water Regulations, 2002*. These standards are included in each new or renewed waterworks permit. Permitting for municipal waterworks continued though the 2008-09 fiscal year. A total of 253 waterworks operational permits were issued or renewed. A total of 21 pre-existing waterworks permits were amended. The drinking water quality standards are being phased-in by December 2010 for existing waterworks and take effect upon the start-up of any new waterworks. Another 66 wastewater works permits were also issued, renewed or amended during the reporting period.

In terms of the status of drinking water in Saskatchewan, the "Health and Toxicity" water quality parameters include a range of naturally occurring substances (i.e. arsenic, barium, boron, lead, nitrate, selenium, uranium, etc) and other substances such as trihalomethanes, which may be produced during chlorine based disinfection processes. These substances may represent a very small potential for adverse health effects to consumers over longer time periods. The safety gains associated with disinfection of drinking water to eliminate microbial threats far outweighs any possible adverse health risks associated with disinfection by-products. A complete listing of the health and toxicity substances monitored at Ministry of Environment regulated waterworks is available at http://www.SaskH2O.ca/foroperators.asp (see Municipal Drinking Water Quality Monitoring Guidelines or directly to http://www.SaskH2O.ca/DWBinder/EPB202MunicipalDrinkingWaterQualityGuidelinesEdition3.pdf). Implementation of these water quality standards is achieved through permitting, inspection and follow-up on monitoring results. For existing waterworks, a regulatory phase-in period requires that all works meet heath and toxicity standards by December 2008 (population of 5,000 or more) or by December 2010 (population of less than 5,000). Figure 2 depicts compliance with sample submission requirements and testing compliance for health and toxicity parameters during the 2008-09 fiscal year.

Figure 2: Health and toxicity sample submission and parameter result compliance – 2008-09



Source: Ministry of Environment – Environmental Management System

Figure 2 provides a representation of both sample submission compliance as well as compliance with health and toxicity water quality parameters based on routine samples submitted by Ministry of Environment permitted waterworks. Based on the available information from the 2008-09 fiscal year, 67 per cent of Saskatchewan Ministry of Environment's permitted waterworks submitted the required Heath and Toxicity samples. Eighty-three per cent of these waterworks met the drinking water quality objectives for health and toxicity related chemicals. Figure 2 shows these results compared to the results for last year. Although the results show a slight decline in compliance, for the majority of existing waterworks, the actual deadline for compliance with the health and toxicity standards does not take effect until December, 2010. The indicated decline is also related to additional samples submitted by communities which are trying to verify high results and aid in deciding on the need to proceed with treatment upgrading to meet the 2010 standards. Ministry of Environment staff continue to work with waterworks owners to move towards upgrades to achieve compliance by December, 2010. Owners of

waterworks not submitting required samples are provided notification on a quarterly basis to ensure long-term compliance with sample submission requirements.

In 2008-09, there were 60 facilities that exceeded at least one health and toxicity related chemical standard resulting in a total of 98 exceedences. Table 5 provides a listing of the parameters and number of excursions at all Ministry of Environment regulated waterworks.

Table 5: Health and toxicity parameter specific excursion totals for Ministry of Environment regulated waterworks – 2008-09.

Parameter	Number of Excursions in 2008-09
Arsenic	32*
Barium	0
Copper	1
Nitrate	0
Lead	17*
Selenium	8
Uranium	40*

Source: Ministry of Environment – Environmental Management System

During the 2008-09 fiscal year, seven facilities exceeded the maximum acceptable concentration for fluoride on 13 sampling occasions. Two of these facilities (Box Elder Hutterite Colony and Tobin Lake Resort Village) have high, naturally occurring fluoride in their ground water supplies which accounted for four of the 13 exceedences. The Ministry of Environment monitors results from all systems that artificially fluoridate or have high naturally occurring fluoride.

The present standard for trihalomethanes now being phased-in at existing waterworks is 100 parts per billion based on an average of four seasonal samples. The Ministry of Environment has completed its examination of this water quality standard in accordance with the federal/provincial/territorial guideline development process and the water quality standard for trihalomethanes will remain at the present level of 100 parts per billion based on an average of four seasonal samples. Implementation of the trihalomethane standard is underway with a target compliance date of December 2010.

A total of 175 surface water treatment and delivery facilities were required to participate in the trihalomethane monitoring program during the 2008-09 fiscal year, which should result in 716 samples being submitted each year. The actual number of regulated waterworks that submitted samples was 156 (89.14 per cent). A total of 644 samples (89.94 per cent overall submission compliance) were submitted by the facilities. During 2008-09, 136 regulated waterworks (77.71 per cent) submitted 483 samples for analysis that met the maximum acceptable concentration for trihalomethanes in drinking water. During 2008-09, 114 of 175 regulated waterworks (65.14 per cent) produced water that met the trihalomethane objective of 100 ug/L based on the annual average of seasonal sampling.

- SaskWater continues to work with engineering firms and suppliers to develop and apply emerging technologies to provide quality drinking water to its customers. For the past two years, SaskWater partnered with Consulting Engineers of Saskatchewan (CES) on a Technical Exchange Workshop. Consultants, operators and regulators, including the Ministry of Environment, met and shared knowledge for the benefit of Saskatchewan's entire water and wastewater industry.

- SaskWater has been involved in a number of innovative projects to improve water and wastewater services:

  In 2008, SaskWater pilot tested aeration pretreatment which oxidizes organic matter and increases dissolved oxygen levels at the water source such as a lake, reservoir or dugout. Depending on the system, this process can control algae growth and oxidize iron manganese.

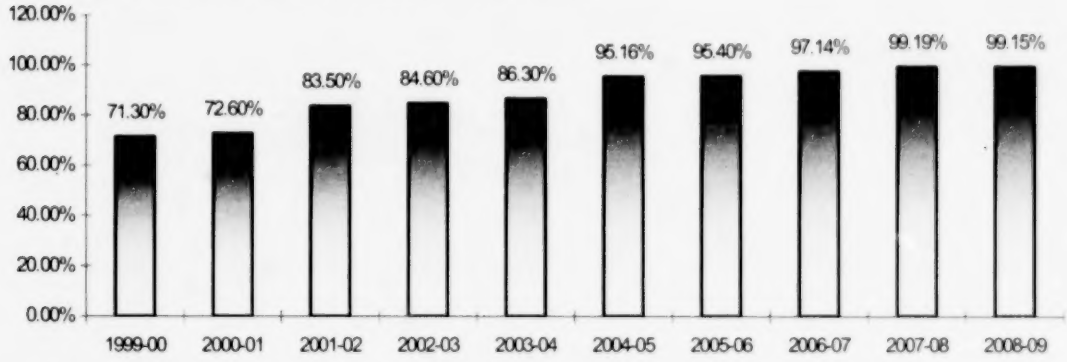
  In collaboration with INAC, the Town of La Ronge and suppliers for the La Ronge Regional water supply and treatment system, SaskWater pilot tested Magnetic Ion Exchange (MIEX) and membrane filtration. These new emerging technologies are used to reduce high organic and particulate materials including chlorine-resistant pathogens such as *cryptosporidium* and *giardia* in surface water.

  In partnership with the City of Moose Jaw and Forest First, SaskWater is working towards developing an effluent irrigation demonstration site using poplar woodlots. This is an emerging trend for disposal of sewage effluent from wastewater treatment systems. The main benefits are reduced environmental impacts and the potential for zero discharge into surface water bodies. The demonstration project will assist in developing alternate disposal strategies in the light of new and upcoming stringent effluent discharge regulations.

Measurement Results

Per cent of facilities that meet bacteriological guidelines 90 per cent of the time

Figure 3: Bacteriological standards compliance



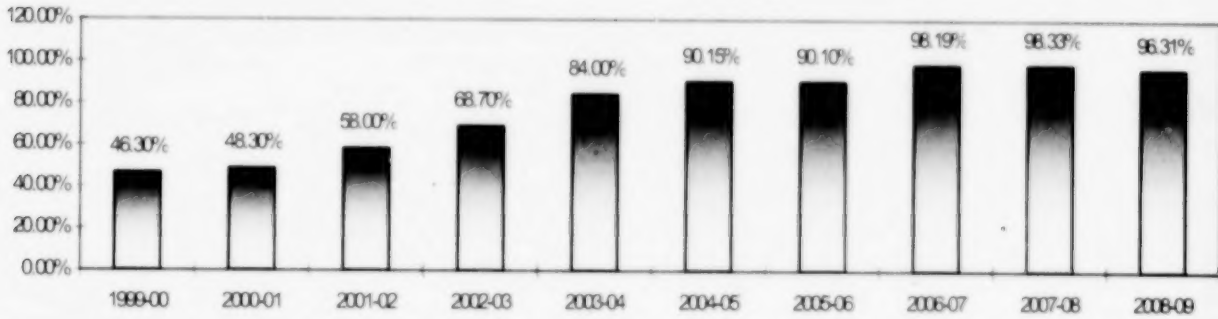
Source: Ministry of Environment – Environmental Management System

There has been a steady increase in compliance with bacteriological water quality standards (90 per cent of the time) over the past six fiscal years with a 12.85 per cent increase in compliance from 86.3 for 2003-04 to 95.2 per cent for the 2004-05 fiscal year to 95.4 per cent for the 2005-06 fiscal year to 97.14 per cent in 2006-07 and to 99.15 per cent in 2008-09. Change between 2007-08 and 2008-09 was minimal with only a 0.04 per cent decline in compliance during 2008-09 from the previous fiscal year and is not considered significant in terms of a change in compliance. Longer term increases in bacteriological compliance also matches well with the relatively low numbers of PDWAs and EBWOs issued in 2008-09 (four PDWAs and seven EBWOs – see pages 26 and 27). The steady increase in compliance with standards is the result of increased inspection and follow-up on water quality sampling results by Ministry of Environment staff as well as increased attention to water treatment and monitoring by waterworks owners and operators.

The bacteriological quality of drinking water is important since contamination of this type can result in significant illness within a short period of time. Compliance with bacteriological water quality standards was selected as a reportable performance measure, since it provides a good indication of drinking water quality, which is important to consumers. Compliance with this measure is primarily controlled by the owner of the waterworks, but also requires cooperation from the waterworks operator(s) in achieving bacteriological water quality compliance. Ongoing inspection and interaction with waterworks owners and operators is planned to sustain good performance in achieving water that is safe from bacteriological threats.

Per cent of waterworks [regulated by Ministry of Environment] that meet disinfection requirements 90 per cent of the time

Figure 4: Disinfection standard compliance



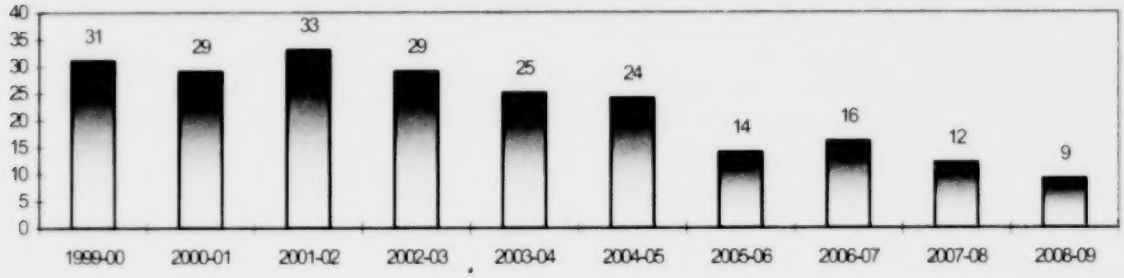
Source: Ministry of Environment – Environmental Management System

There has been a slight decrease in compliance with the disinfection standards over the past fiscal year with a drop to 96.31 per cent from 98.33 per cent in 2007-08. The reason for this decline is related to more frequent failure of waterworks operators to record chlorine residual testing results on sample submissions, in which case results are considered non-compliant. Ministry of Environment staff will be re-emphasizing the need to comply with disinfection standards in 2009-10 and beyond. The compliance rate is significantly above the 1999-2000 compliance rate of only 46.3 per cent of facilities meeting disinfection requirements.

Proper disinfection of drinking water is one of the most important ways to ensure safe drinking water and prevent the outbreak of waterborne diseases. Compliance with chlorine residual requirements was selected as a measure, since it provides a good indication of drinking water protection, which is important to consumers. Compliance with this measure is primarily controlled by the owner of the waterworks, but also requires cooperation from the waterworks operator(s) in achieving disinfection standards compliance. Ongoing inspection and interaction with waterworks owners and operators is planned to sustain good performance in achieving water that is safe from bacteriological threats and meets disinfection standards.

Number of waterworks that do not meet Ministry of Environment's minimum treatment requirements (broken down by pre and post regulatory changes)

Figure 5: Number of waterworks regulated by Ministry of Environment that do not meet minimum treatment requirements



Source: Ministry of Environment Advisory Tracking Spreadsheet

As of March 31, 2009 there were a net of nine waterworks that did not meet Ministry of Environment's minimum treatment requirements, a net decrease of 25 per cent since the previous year when there were 12 such works. Table 6 provides a summary of waterworks not meeting minimum treatment requirements broken down by pre and post regulatory changes. The decrease is the result of ongoing improvements to existing waterworks to correct deficiencies of the water treatment systems. Educational efforts are ongoing as is provision of funding through various funding programs in the past to upgrade works. Ministry of Environment's educational and compliance efforts will continue during 2009-10 and beyond as a means to reduce the number of waterworks not meeting minimum treatment requirements. The owner of the waterworks primarily controls the achievement of this measure, however the regulator has significant influence through a number of mechanisms. Periodically, as newly regulated waterworks are permitted, inadequacies in water treatment capability are discovered, an increase in newly regulated waterworks not meeting minimum treatment will occur.

Table 6: Waterworks not meeting minimum treatment requirements

	March 31, 2005	March 31, 2006	March 31, 2007	March 31, 2008	March 31, 2009	Annual Change (2008-2009)
Waterworks not meeting minimum treatment requirements	24	14	16	12	9	↓ 3

Source: Ministry of Environment

As of March 31, 2009, nine waterworks did not meet the minimum treatment requirements. This represents a net decrease of 25 per cent from the previous year. The decrease was the result of ongoing improvements to existing waterworks to correct deficiencies of the water treatment systems. The number of waterworks that do not meet minimum treatment requirements is a direct indication of potential water quality concerns because of infrastructure inadequacies. As of March 31, 2009, human consumptive waterworks that did not meet minimum treatment requirements served approximately 848 residents or 0.09 per cent of the provincial population (2006 census provincial population of 968,157). Educational efforts are ongoing.

as is the provision of funding to upgrade works through federal-provincial infrastructure improvement programs. Educational and compliance efforts will continue during 2009-10 to reduce the number of waterworks not meeting minimum treatment requirements.

The Ministry of Environment continues to place all regulated waterworks not meeting minimum treatment on Precautionary Drinking Water Advisories to protect consumers. The ministry also provides technical advice to communities not meeting minimum treatment requirements to aid waterworks owners to work towards system improvements.

Theme: Waterworks systems and operations are financially sustainable

Ensuring the financial sustainability of waterworks is critical in the production of safe drinking water over the long-term. Waterworks deteriorate over time and may need to be expanded or replaced. Municipalities will therefore need to know the condition of their waterworks and put in place pricing and capital investment policies for these systems. Public transparency will aid in ensuring that waterworks systems are sustainable into the future. The following is a summary of activities which were conducted during 2008-09 and the related achievements in working to ensure that waterworks systems and operations are financially sustainable.

Results – Waterworks systems and operations are financially sustainable

- By April 21, 2008, 40 per cent of the municipalities submitted, to the ministry, public information on the financial sustainability of their waterworks for 2006. Of these municipalities, 40 per cent indicated they had in place a waterworks rate policy and capital investment strategy. This was the second year the applicable regulations including *The Municipalities Regulations*, *The Northern Municipalities Public Reporting on Municipal Waterworks Regulations* and *The Cities Regulations* were in effect. Application process ensures that only financial sustainability projects receive funding from the federal and provincial government. Ministry of Municipal Affairs is currently assessing the policies and procedures for waterworks financial reporting, including how to improve public reporting.

Measurement Results

Number and percentage of municipalities that have reported waterworks information on the financial sustainability of their systems and number and percentage of municipal waterworks that have reported that have rates that cover waterworks expenditures and debt payments

Of the municipalities that submitted their public waterworks information to the ministry, 46 per cent reported waterworks revenues that covered the waterworks expenditures and debt payments.

Waterworks rates that cover waterworks expenditures and debt payments are a direct indicator of waterworks financial sustainability. The public reporting regulations facilitate consumers' understanding of the need for, and possibly acceptance of, waterworks rates that cover waterworks costs.

Ministry of Municipal Affairs requires municipalities to establish a long-term financial sustainability plan for their waterworks in order to receive infrastructure funding for their waterworks.

Lack of municipal capacity will limit some smaller municipalities from establishing these waterworks policies and strategies.

To improve customer's rate's, SaskWater undertook a cost of service rate study to determine rates required across service areas and customer types. SaskWater completed its cost of service rate study in 2008, and will begin to prepare a set of recommendations for future water utility rates.

Key Area: The drinking water regulatory system is clear and effective

Theme: Regulations are clear and ensure that health and drinking water quality will be protected

Provision of safe drinking water is reliant on regulatory requirements that are clear and communicated to owners and operators of waterworks. Additionally, accepted standards and practices are required to ensure requirements are achieved in the proper manner. Program delivery and related policies are necessary to track and ensure that regulatory requirements are being met. Collectively, these measures will help to ensure that drinking water is safe and that wastewater effluent discharges do not threaten the quality of source waters or adversely impact the environment. The following is a summary of activities which were conducted during 2008-09 and the related achievements in working to ensure that regulations are clear and ensure that health and drinking water quality will be protected.

Results – Regulations are clear and ensure that health and drinking water quality will be protected.

- The Ministry of Environment continued implementation of regulatory changes that were directed at aiding small waterworks to provide safe and affordable drinking water. Fact sheets on reduced requirements for waterworks system assessments were prepared, circulated to clients and posted on the SaskH2O website. Similarly material was revised to provide clear direction on the revised (reduced) requirements for operator certification at small municipal waterworks. Ministry staff also continued work towards implementation of hygienic waterworks classification for some small communities in significant decline.

- The new *Planning and Development Act*, 2007 requires that municipal land use policies on source water protection be included in the new Official Community Plans (OCP). Also, statements of provincial interest in land use that are under development by the government may include source water protection measures and they will apply to subdivision decisions made in the absence of an OCP. Future provincial regulations regarding private or communal water wells may be implemented through local bylaws and incorporated into the statements of provincial interest.

- During the 2008-09 fiscal year, the Ministry of Environment continued to advocate the use of communal waterworks in municipal and subdivision settings through provision of comments on subdivision applications referred to the ministry. Some progress was made in developing guidance material for developers and those seeking to subdivide land for development through an inter-ministry working group (Ministries of Municipal Affairs, Environment and Health and the Saskatchewan Watershed Authority). As of the end of the reporting period, work had commenced through the leadership of Ministry of Health with the "A Review of Approaches for Subdivisions where Onsite Sewage Systems are Proposed" initiated.

- In the fall of 2008, the Saskatchewan Watershed Authority, Ministry of Health and the Saskatoon Health Region cooperated to assess drinking water risk and explore risk management options with the Village of Hepburn. The objective of the study was to assess the drinking water quality of private and public water sources within the village in order to inform the public and decision makers of the potential health risks associated with their water supplies. In all, 67 privately-owned water sources and 25 publicly-regulated water sources were sampled.

- In the fall of 2008, the Saskatchewan Watershed Authority, the Saskatchewan Ministry of Health, and the Saskatoon Health Region cooperated to assess drinking water risk and explore risk management options with the village of Hepburn. The objective of the study was to assess the drinking water quality of private and public water sources within the village, in order to inform the public and decision makers of the potential health risks associated with their water supplies. In all, 67 privately-owned water sources and 25 publicly-regulated water sources were sampled.

- In early 2009 the Ministry of Health and the Saskatchewan Watershed Authority awarded a contract as the next step in developing a Saskatchewan Guidance Document for assessing with subdivisions where the usage of onsite wastewater treatment and disposal systems are proposed. The contractor will review the approaches of other jurisdictions, the proposed Saskatchewan approach, and complete human health and ecological risk assessments. During this work, the Contractor will be expected to make recommendations for modifications to the Saskatchewan Guidance Document as well as developing a residual risk monitoring program. Contract work is to be completed by the summer of 2009.

- During the fiscal year, Health Region public health inspectors inspected 962 public water supplies that fall under *The Health Hazard Regulations*.

- During 2008-09, implementation of the Ministry of Environment's Drinking Water and Wastewater Enforcement Protocol resulted in 85 written warnings, three Ministerial Orders and four charges being laid under *The Water Regulations, 2002*. In addition, there were four convictions for waterworks related offences.

- Components of the Drinking Water Information Binder and SaskH2O website are updated regularly by the Ministry of Environment to keep owners and operators current with operational requirements and newly emerging information. During 2008-09, 30 publications were updated. Work was underway on another 20 guidelines or protocols as of March 31, 2008. The results of waterworks inspections can be found online at http://www.SaskH2O.ca/MyDrinkingWater.asp. Having inspection results online is intended to increase transparency and public trust in drinking water supplies and the associated regulatory processes.

- Waterworks inspections are carried out by the EPOs and are the most important point of contact and compliance mechanism to ensure proper management of drinking water. During a three-year cycle, at least one inspection will be unannounced. Water sources such as wells or surface water intakes are re-inspected every second year. Table 7 summarizes the findings of key elements for inspections conducted during the 2008-09 fiscal year.

Table 7: Waterworks inspection finding summary

Inspection Element	Non-Compliant	N/A or No Response*	Compliant
Disinfection continuous at plant	19	24	828
Disinfection Free chlorine > or = 0.1 mg/L leaving the plant	113	70	688
Monitoring daily chlorine	65	23	783
Reservoirs in good repair	16	108	747
Water treatment plant in clean and orderly condition	16	46	809
A total chlorine residual not <0.5 mg/l or a free chlorine residual not <0.1 mg/l in the distribution system	141	31	699
Bacteriological testing after completion, alteration, extension or repair	19	55	797
Reporting of chlorine upsets	77	49	745
Record keeping	65	72	734

N/A = Non-applicable. Some waterworks inspected do not have a treatment plant such as pipeline systems. These may be recorded as N/A or No response.

Source: Ministry of Environment – Environmental Management System

- The Bacteriological Follow-up Protocol for Waterworks Regulated by the Saskatchewan Ministry of Environment EPB 205 was reviewed in the 2008-09 fiscal year. Beyond minor revisions review of the document was continuing at the end of the reporting period to ensure that the document remains current with response needs within the province to deal with bacteriological water quality problems. The Bacteriological Follow-up Protocol for Waterworks Regulated by the Saskatchewan Ministry of Environment EPB 205 provides for the issuance of PDWAs by the ministry when there is a concern that problems (due to microbial or chemical contamination) may exist. Ministry staff also uses a protocol for upset reporting and follow-up to protect consumer health and drinking water quality. Waterworks owners and operators continue to be advised of upset reporting requirements during inspections. EBWOs are issued by Health Region officials to deal with confirmed public health threats such as microbial contamination of drinking water. Tables 8 and 9 outline statistics for PDWAs and EBWOs issued for Ministry of Environment and Health Region regulated waterworks during the 2008-09 fiscal year.

Table 8: EBWO/PDWA statistics for 2008-09 –Ministry of Environment regulated waterworks

Time	EBWO	PDWA
In effect prior to reporting period	1	58
Added during the reporting period	10	210
In effect at end of reporting period	2	67

Source: Ministry of Environment

Table 9: EBWO/PDWA statistics for 2008-09 – Health Region regulated waterworks*

Time	EBWO	PDWA
In effect prior to reporting period	*43	*72
Added during the reporting period	18	53
In effect at end of reporting period	43	91

*Changes to procedures to business rules for data entry into the Environmental Health System (used to track health regulated public water supply has caused a variance from those numbers reported in 2007-08.

Source: Information provided by the Health Regions in Saskatchewan

Tables 10 and 11 provide information regarding the reasons for PDWAs and EBWOs issued during the 2008-09 fiscal year for waterworks regulated by the Ministry of Environment and Regional Health Authorities, respectively. Further information on the nature of a PDWA and EBWO issued during 2008-09 by the Ministry of Environment is available from the ministry or on the Internet (http://www.SaskH2O.ca/advisories.asp).

Table 10: Reason for issuing PDWAs during 2008-09 – Ministry of Environment regulated waterworks

Reason for issuance of PDWA	Number
Seasonal startup of waterworks	37
Startup of new or upgraded waterworks	10
Inadequate chlorine residual	5
Planned maintenance of reservoir	1
Unplanned depressurization of system	82
Planned depressurization	8
Maintenance and depressurization	23
No operator or no certified operator	2
Lacks minimum treatment	6
High turbidity	10
Positive total coliform monitoring results	3
Positive *E. coli*	1
Contamination or waterworks or reservoir	2
Operational problems at waterworks	7
Equipment failure	2
Low consumption	1
Elevated naturally occurring uranium in water supply	1
Unknown chemical substance in water supply	1
Elevated nitrate and/or naturally occurring arsenic in water supply	3
Water and sewer line break in same area	1
Upset at waterworks	3
Supply pipeline does not meet treatment requirements	1
Total	**210**
Reasons for issuance of EBWO during 2008-09	**Number**
Detected presence of *E. coli*	6
Detected presence of pathogens	1
Water and sewer main break in same area	2
Unintended pumping of surface water to distribution system	1
Total	**10**

Source: Ministry of Environment

Table 11: Reason for issuing EBWOs and PDWAs during 2008-09 – Health Region regulated waterworks

Reasons for issuance of EBWO during 2008-09	Number
Positive *E. coli* results	16
Positive bacti results	2
Total	**18**

Reason for issuance of PDWA	Number
Supply unsafe water-miscellaneous	10
Startup of waterworks	1
Positive bacti results	16
Lack of minimum treatment	26
Total	**53**

Source: Information provided by the Health Regions in Saskatchewan

- The Ministry of Environment's Drinking Water and Wastewater Enforcement Protocol EPB 222 continues to provide direction and guidance for Environmental Project Officers to ensure uniform, effective and efficient compliance and enforcement practices are followed in dealing with non-compliance for drinking water and wastewater related violations. The enforcement protocol requires that compliance be obtained through the use of public education and prevention as initial priorities while enforcement is a tool of last resort. Compliance related actions might also be applied when an issue is causing, or may cause a significant risk to public health and safety, or the environment. During 2008-09, the ministry continued to provide compliance related training for new and existing staff members. A review was conducted of the Drinking Water and Wastewater Enforcement Protocol EPB 222 to ensure it remains current.

  During 2008-09, implementation of the enforcement and compliance protocol continued and was integral in gaining compliance in problematic or difficult situations. Eighty-five written warnings were issued for waterworks and sewage works related infractions. As well, three sewage works protection order were been issued to non-compliant parties. Four charges have been laid for waterworks related infractions. There were four convictions registered for waterworks related offences. The nature of water and wastewater related infractions encountered during the reporting period are summarized in Table 11.

  Ongoing implementation of the Ministry of Environment's Drinking Water and Wastewater Enforcement Protocol resulted in 85 written warnings, three Ministerial Orders and four charges laid under *The Water Regulations, 2002*. In addition, there were four convictions for waterworks related offences.

  Verbal Warnings

  Verbal warnings are issued for minor offences encountered during inspection duties. Verbal warnings are documented on inspection forms used by inspection staff.

  Written Warnings

  Written warnings consist of letters of non-compliance and notices of violation. Written warnings are issued for non-compliance detected during inspections or when follow-up requirements identified through previous inspections or correspondence was not complied with. During 2008-09, 85 written warnings were issued to waterworks or sewage works owners. Table 11 provides a breakdown of the infraction details.

Typically, the waterworks owners address all verbal and written warnings in a short time period. Ministry staff follow-up by repeat contacts or inspections to ensure warnings are addressed and protection of water quality is assured.

Waterworks Protection Orders and Sewage Works Protection Orders

Waterworks Protection Orders are issued to a person responsible for a waterworks if, in the opinion of the Minister of Ministry of Environment, it is necessary to do so to protect human health or the environment. Sewage Works Protection Orders are issued to a person responsible for a sewage works if, in the opinion of the Minister of Ministry of Environment, it is necessary to do so to protect human health or the environment. Based on ongoing implementation of Ministry of Environment's Enforcement and Compliance Framework, the ministry will always pursue prosecution when a Protection Order is not complied with. Three Sewage Works Protection Orders were issued during the reporting period. Orders were issued to address work required to fix undersized or faulty lagoons. Table 11 provides a breakdown of infraction details. Ministry of Environment follows up on protection orders to ensure that problems are ultimately resolved.

Prosecutions

Four charges were laid during 2008-09 for waterworks related infractions pursuant to *The Water Regulations, 2002*. Prosecution will only be used when prevention, education and other enforcement tools do not compel the violator to comply with legislation. All four charges laid resulted in convictions of the accused. Table 11 provides a breakdown of infraction details.

Table 11: Enforcement and compliance activities-drinking water/wastewater 2008-09

Infraction	Written Warnings Issued	Ministerial Orders issued	Charges Laid	Convictions	Alternative Measures
Fail to report upset condition at waterworks	10				
Fail to comply with permit conditions	8		1	1	
Fail to have water meter in pumphouse	1		1	1	
Fail to report upset condition at sewage works	2				
Improper record keeping	7		1	1	
Fail to do required testing/sampling	12				
Chlorine residuals below minimums	3		1	1	
No annual notice supplied to consumers	3				
Inadequate sewage lagoons	3	3			
Fail to keep water treatment plant in a clean and orderly state	3				
Construction on waterworks / sewage works without permit	11				
No certified operator	6				
No monthly review of records	6				
Fail to seal openings at water treatment plant to prevent contamination	1				
Fail to have backflow prevention	1				
Operate a waterworks without a permit	5				
Fail to maintain manhole to reservoir	1				
Fail to have a quality assurance/ quality control policy in place	1				
Fail to meet required turbidity standards	1				
Total	85	3	4	4	

Source: Ministry of Environment – Resource Intelligence Program database

- The Ministry of Environment issued 253 new or renewed waterworks operational permits during 2008-09 as a means to ensure waterworks technology and requirements keep pace with new developments and in order to help protect consumer health and drinking water quality. A total of 21 pre-existing waterworks permits were amended. Another 66 wastewater works operational permits were also issued, renewed or amended during the 2008-09 fiscal year. A total of 250 permits to construct or upgrade waterworks (154) and sewage works (106) were issued or amended over the 2008-09 reporting period. Permit application materials received minor revisions during the reporting period and are available online at http://www.SaskH2O.ca/foroperators.asp under the heading "Forms". Legislative changes affecting and simplifying the requirement for interest and easement registration are now in full effect.

- For the period of this report (April 1, 2008 to March 31, 2009), a total of 33,506 drinking water samples were processed (Note: Amendment to April 1, 2007 to March 31, 2008 report. Drinking water samples processed was 34,215). A breakdown indicated that 72 per cent of the samples for water supplies were from the Saskatchewan Ministry of Environment, 15 per cent were from private customers and 13 per cent of the water were from Saskatchewan Ministry of Health/Health Regions.

Measurement Results
Number of accredited drinking water testing laboratories

Table 13: Number of accredited drinking water testing laboratories

March 2002	March 2003	March 2004	March 2005	March 2006	March 2007	March 2008	March 2009	Annual Change
1	2	4	6 all labs	6 all labs	6 all labs	6 all labs	6 all labs	0

Source: Standards Council of Canada web (http://www.scc.ca/en/news_events/notices/lab.shtml)

Laboratory accreditation indicates that the laboratory has a quality system that is documented, communicated, understood, implemented and incorporates adequate review, audit and internal quality control and ensures accurate analytical results. Laboratory accreditation was selected as a measure to help gauge results in ensuring safe drinking water for Saskatchewan residents. As of March 31, 2009 all six laboratories located in Saskatchewan that perform analysis of drinking water samples retained accreditation by the Standards Council of Canada or the Canadian Association for Environmental Analytical Laboratories in accordance with regulatory requirements (Table 13). Accredited laboratories include: Ministry of Health – Saskatchewan Disease Control Laboratory, Saskatchewan Research Council, ALS Laboratory Group, BDS Laboratories, the City of Saskatoon Laboratory and the Buffalo Pound Filtration Plant laboratory. Any other water laboratories in operation in Saskatchewan do not serve waterworks regulated by the Ministry of Environment. In Saskatchewan, waterworks regulated by the Ministry of Environment are required to use and accredited laboratory for drinking water testing. Compliance with this requirement is very high.

Theme: Professional regulatory staff has access to the tools necessary to ensure compliance

Provision of safe drinking water is reliant in part on the training and tools that staff can access. The tools take the form of working agreements, computerized information systems, rugged notebooks for data collection in the field as well as examples, guidelines and education information needed to deliver programming. Staff qualifications must also be assured and kept current with new or evolving water management and information gathering processes. Collectively, these tools help to ensure that drinking water is safe and that wastewater effluent discharges do not threaten the quality of source waters or adversely impact the environment. The following is a summary of activities which were conducted during 2008-09 and the related achievements in working to ensure that professional regulatory staff have access to the tools necessary to ensure compliance.

Results - Professional regulatory staff have access to the tools necessary to ensure compliance

- Ministries of Environment and Health staff continue to discuss and consider items such as the Bacteriological Follow-up Protocol and steps for implementation of hygienic systems and a means to ensure drinking water protection. Ministry of Environment program delivery staff and managers held meetings with Health Region representatives during the 2008-09 fiscal year to discuss drinking water and wastewater related programming, progress and waterworks specific concerns in their particular service regions. A new protocol was developed and implemented to facilitate the transfer of waterworks and or sewage works as regulatory clients between the agencies. Collectively, Ministries of Environment and Health continue to coordinate activities for the Safe Drinking Water Strategy with other participating ministries through a Policy and Programs Subcommittee.

- The Ministry of Environment equipped EPOs with "digitized" inspection forms to collect waterworks information from the field on a laptop computer. The information is synchronized with the ministry's EMS and posted to the SaskH2O.ca website the next day.

- Ministry of Environment's EMS was enhanced in 2008-09 to support wastewater management, compliance activities and handle the ever increasing demand for data and information. These enhancements will be launched early in 2009-10 as additions to the SaskH2O.ca website.

Measurement Results

Number and average duration of visits to the www.SaskH2O.ca website

Table 14: Number and average duration of visits to the www.SaskH2O.ca website

Time Period	June 21, 2003 to March 31, 2004*	April 1, 2004 to March 31, 2005	April 1, 2005 to March 31, 2006	April 1, 2006 to March 31, 2007	April 1, 2007 to March 31, 2008	April 1, 2008 to March 31, 2009
Number of Visits to SashH2O Website	27,015	49,862	58,837	68,834	91,418	109,399
Duration of Website Visit (Minutes:Seconds)	7 : 28	7 : 55	7 : 24	10 : 53	25 : 43	10 : 00

*SaskH2O.ca website launched on June 21, 2003.

Source: Webtrends information system

The number and average duration of visits to the SaskH2O website is a good measure of the use of tools that help ensure the protection of drinking water. The site and related databases provide easy access to information for Ministry of Environment officials so that they can more readily perform their duties and track needed information to help ensure safe drinking water. The website also provides access to a variety of fact sheets, guidelines and legislation for waterworks owners, system operators and the public as a means to increase understanding of drinking water quality. The website provides up to date information on water quality for all waterworks that the Ministry of Environment regulates. Although government controls the content of the website, it cannot directly influence use of the site.

Key Area: High quality source waters are protected now and into the future

Theme: Risks to source water quality are known

Protection of source water quality is a component of the provision of safe drinking water. Identification of risks to source water quality is the first step in developing actions and strategies to protect source water and minimize the cost to treat drinking water. Through the watershed planning actions, it is expected that other risks to source water quality will be identified. The following is a summary of activities which were conducted during 2008-09 and the related achievements in working to ensure that risks to surface water quality are known.

Results - Risks to source water quality are known

- Saskatchewan Watershed Authority is developing the second State of the Watershed Report which will be completed before the end of 2009.

- This is the third and final year of the Paired Watershed Study led by Saskatchewan Watershed Authority. The study was undertaken to better understand and quantify environmental risks associated with low- to moderate intensity agricultural activities and to provide assessment on the effectiveness of some common beneficial management practices (BMP). The prairie region has naturally nutrient rich soils, unique hydrology and naturally nutrient rich water bodies; therefore both the risk associated with agricultural activities and BMP effectiveness may be different from studies undertaken elsewhere. The Paired Watershed Study is examining nutrient, sediment and bacterial concentrations and loadings across a gradient of land cover, from mostly cropped to mostly permanent cover. BMP evaluation includes cropland conversion, riparian health assessment, and remote livestock watering. The results to date indicate a significant relationship between land cover and nutrient loading. It has also found higher nutrient and sediment concentrations in areas with localized shoreline disturbance and lower bacteria concentrations in watersheds with remote watering systems. The information from this study and ongoing examination of the ecological health in the area will be instrumental in the design and implementation of a Watershed Evaluation of Beneficial Management Practices sites (WEBs) in Saskatchewan.

- The Ministry of Environment revised the monitoring requirements for regulated wastewater systems to better align with information needs that will eventually be associated with initial characterization and implementation on the Canada Wide Strategy for MWWE. These monitoring requirements are introduced as sewage works operational permits are renewed or earlier, particularly for those sewage works which discharge effluent to fish-bearing waters. Ministry of Environment staff review the results of wastewater effluent discharge testing on an annual basis and address any complaints that arise due to wastewater effluent releases.

- Under *The Pest Control Products (Saskatchewan) Act*, there were 2,339 pesticide applicator licenses issued along with 408 pesticide vendor licenses. Each vendor maintains an approved storage facility supported by the industry and Ministry of Environment. An applicant for a pesticide applicator license must pass a pesticide applicator course. The applicator training is valid for a five year period, however, the applicator license is renewed on an annual basis.

Measurement Results

Number of sewage effluent discharges that represent a risk to source waters

Table 15: Number of sewage effluent discharges that represent a risk to source waters

March 2004	March 2005	March 2006	March 2007	March 2008	March 2009	Annual Change
93	93	85	116	114	114	0

Source: Ministry of Environment – Environmental Management System

As of March 31, 2009, approximately 114 wastewater systems have been identified as having discharge that may reach a surface water body under certain conditions. Of these 114 systems, approximately 70 may require compliance with pending Canada-wide Standards for MWWE (Table 15). During 2008-09, the ministry issued permits for significant improvements to three sewage works systems that will have a positive effect on effluent quality and receiving fish bearing waters. Examples include the installation of ultraviolet

disinfection at the City of Saskatoon sewage works and expansion of lagoon capacity at the City of Weyburn and Thompson Lake Regional Park. On an annual basis, ministry staff review the quality of effluent from each regulated sewage works. Reduction of ammonia and chlorine residual emissions within treated wastewater effluent, sewage works capacity or other treatment capability issues typically involve significant planning, investment and construction. Therefore, it can be expected that reductions in the number of works, which represent a risk to source waters, will be a time consuming process.

The number of sewage effluent discharges that represent a risk to source waters is a direct indication of the potential for source water contamination due to poor wastewater treatment. This measure now incorporates the need for future compliance with MWWE standards. This measure was selected since it is the most direct measure of the number of potential significant contamination point sources. Further work to resolve problematic wastewater systems is planned for 2009-10 and beyond.

Theme: Watersheds are protected, natural purification and protection processes are maximized and potential for contamination is minimized

Protection of source waters can reduce the costs of water treatment and improve water quality while helping to maintain other water uses. Sound water resource management means that the processes, which break down wastes, must be protected as must land use practices that can protect water quality from contamination. Actions in terms of both organizational structure and watershed/water management are improving source water protection in the province. The following is a summary of activities which were conducted during 2008-09 and the related achievements in working to ensure that watersheds are protected, natural purification and protection processes are maximized and potential for contamination is minimized.

Results - Watersheds are protected, natural purification and protection processes are maximized and potential for contamination is minimized

- During 2008-09, a Biosolids Task Group was formed under the CCME to develop national guidance on the management of the residual solid materials (biosolids) which arise through wastewater treatment processes. Once completed, the work of the Biosolids Task Group will complement the national strategy for MWWE by developing viable solutions for the treatment, reuse or disposal of biosolids in Canada. Ministry of Environment staff represent Saskatchewan on this working group.

- During the 2008-09 fiscal year, the Ministry of Environment further revised documents which are intended to aid waterworks owners in determining if their water source is Groundwater Under Direct Influence (GUDI) of surface water. Source water protection plans and water treatment system upgrades are being used by waterworks owners to manage the risks associated GUDI systems in the province.

- Over 200 monitoring sites have been established across southern Saskatchewan covering existing Ministry of Environment primary sites, Prairie Provinces Water Board (PPWB) sites, long-term Ministry of Agriculture water quality sites and Saskatchewan Watershed Authority sites. The Authority used the range of conditions represented by these sites to construct an assessment model that is able to quantify impact of human stressors (i.e. changes in water quality) on aquatic ecosystem health. This model has been validated but not yet peer reviewed. The initial output of this watershed health model will be presented in the 2009 State of the Watershed Report and submission of this project and model to a peer-reviewed journal is under development. Further, the Authority will be undertaking additional reference site data collection (100 additional sites) through the late summer and early fall 2009 in order to strengthen our model and improve its sensitivity to multiple stressors.

- The Spirit Creek Watershed Monitoring Committee (SCWMC) continues to monitor water quality in the Spirit Creek. The committee has commissioned a soil monitoring project to be complete in 2012. The SCWMC was established in 2000 by the Minister of the Ministry of Agriculture to provide independent monitoring of water resources in the Spirit Creek Watershed Basin. A five-year report on the work was completed by the committee in 2006 and is available at http://www.spiritcreek.ca on the SCWMC website.

- Ministry of Agriculture initiated research to investigate the impacts of agriculture on surface water quality in 2006. This work focused on assessing long-term trends in water quality in Saskatchewan's rivers and utilizing other database information (i.e. Agriculture Census Data) to advance our understanding of the landscapes and agricultural activities that influence surface water quality. It is anticipated this knowledge will facilitate further effective land management decisions and lead to improved program delivery.

- Local leadership in implementing source water protection plans has been facilitated by providing technical and financial support to six non-profit organizations which are implementing completed source water protection plans. Watershed Authority has provided a $520,000 to these groups to implement their source water protection plans. Development of source water protection plans has been initiated in four additional watersheds.

  Major public consultations on the new *Planning and Development Act, 2007* were completed in 2006 and the Act came into effect on March 21, 2007. Draft statements of provincial interest are under development with public consultations planned in 2009. The significant aspect of the new legislation is the provision for statements of provincial interest in land use and direction on municipal land use bylaws to protect water sources.

- Ministry of Agriculture continues to work with the Saskatchewan Watershed Authority on several riparian enhancement and/or protection projects and in the publication of "beneficial" management practices to keep riparian areas healthy and functional.

- Under the Growing Forward Agreement with the federal government, Environmental Farm Planning and Agro-group environmental planning is continuing. Environmental Farm Plans (EFP) will help farmers to identify environmental risks, including risks to water resources. The framework provides partial funding for the implementation of practices that reduce or minimize some of the risks identified. The Provincial Council of Agriculture Development and Diversification (ADD) Boards (PCAB) is the delivery agency both for environmental farm planning and beneficial management stewardship programming.

- Ministry of Agriculture administers *The Irrigation Act, 1996*. The legislation ensures soils and water are suitable for sustainable irrigation. Irrigation soils, water quality and water tables are monitored for sustainability. Technical assistance is provided when requested to Ministry of Environment on effluent disposal via land application to help ensure a high level of environmental protection and ongoing agricultural productivity.

The Saskatchewan Watershed Authority has been delivering the Rural Water Quality Program (RWQP) since 1998. This program offers a full consultative water quality service to towns, villages and hamlets; farmers; acreage owners and residents of trailer parks with their own private water supplies – all of these are considered to be "rural water users." The intent of this initiative is to provide assistance to private well owners in identifying the nature, cause and implications of their specific water quality problems and the most appropriate means to correct them. Since the inception of the program, over 2,500 wells have been sampled and tested. Of these wells, approximately 70 per cent exceed the Provincial Drinking Water Maximum Acceptable Concentrations for Health. This poses a significant health risk to those individuals using these wells. The management of these wells in terms of drinking water safety is not covered by either

the Ministry of Environment or the Ministry of Health Legislation – both of which deal exclusively with public systems.

Given this risk and the fact that the Saskatchewan Watershed Authority is well-placed to deal with the issue, the Authority has refocused the delivery of its RWQP on high-risk communities serviced by private groundwater wells. These communities have been identified by the Ministry of Health and various health districts as being serviced by private wells having "high-risk" groundwater, used the groundwater as a potable water source, and the communities are going through growth and expansion. Previously, private wells (tested under the program) were sampled in an ad-hoc, incremental manner (i.e. waiting for clients to call in) with no priority assigned to high-risk communities or areas. The refocused program is done in partnership with the high-risk community, the associated health district, the Ministry of Health and the Saskatchewan Watershed Authority. During the fiscal year an assessment at the Village of Hepburn was completed.

Measurement of Results
Water Quality Index ratings for rivers

Table 16: Water quality index ratings for rivers (three year average water quality index values and ratings for rivers)

Location	2003 - 05	2003-05 Rating	2004 - 06	2004-06 Rating	2005 – 07*	2005-07 Rating*
Assiniboine River (Highway #8)	67.6	Fair	68.9	Fair	79.3	Fair
Battle River (Battle Rapids)	NR	NR	NR	NR	78.9	Fair
Beaver River (Beauval)	91.7	Good	91.0	Good	80.5	Good
Beaver River – (Dorintosh)	83.4	Good	82.5	Good	75.1	Fair
Churchill River (Otter Rapids)	100.0	Excellent	100.0	Excellent	88.2	Good
North Saskatchewan River (Upstream Highway #16 Bridge)	NR	NR	NR	NR	71.9	Fair
North Saskatchewan River (Borden Bridge)	NR	NR	NR	NR	80.8	Good
North Saskatchewan River (Prince Albert)	61.5	Fair	73.3	Fair	73.8	Fair
North Saskatchewan River (Cecil Ferry North Bank)	66.9	Fair	58.9	Marginal	84.4	Good
North Saskatchewan River (Cecil Ferry – South Bank)	80.9**	Good	68.1**	Fair	73.1	Fair
Qu'Appelle River (below Qu'Appelle Dam)	100.0	Excellent	100.0	Excellent	95.5	Excellent
Qu'Appelle River (at Highway # 2)	NR	NR	NR	NR	79.1	Fair
Qu'Appelle River (above Wascana Creek)	76.1	Fair	70.1	Fair	58.4	Marginal
Qu'Appelle River (Highway #11 at Lumsden at rock dyke)	69.0	Fair	67.4	Fair	62.8	Fair
Qu'Appelle River (Highway #56)	NR	NR	NR	NR	70.2	Fair
South Saskatchewan River (Leader)	NR	NR	NR	NR	81.5	Good
South Saskatchewan River (near Outlook)	NR	NR	NR	NR	94.5	Good
South Saskatchewan River (near Queen Elizabeth power station)	NR	NR	NR	NR	95.5	Excellent
South Saskatchewan River (west Clarkboro)	NR	NR	NR	NR	90.9	Good
South Saskatchewan River (near Muskowday)	NR	NR	NR	NR	64.8	Fair
Saskatchewan River (Highway #6)	NR	NR	NR	NR	90.4	Good
Souris River (Highway #39)	NR	NR	NR	NR	70.1	Fair
Tobin Lake (at E.B. Campbell Dam)	NR	NR	NR	NR	80.9	Good

*Index values and ratings were re-calculated in May 2009 for 2005-2007 based on the Canadian Environmental Sustainability Indicator (CESI) methodology. The CESI methodology differs from methodologies used to calculate the index in previous years and therefore the results are not directly comparable to previous values. The Ministry of Environment intends to employ the CESI water quality index methodology in future years.
** No data for 2005

Source: Ministry of Environment water quality monitoring results

The Water Quality Index (WQI) is a measure of the quality of ground water and surface water for specific uses, such as the protection of aquatic life, livestock watering, recreation, etc. that may not otherwise be apparent through individual water quality test results. The levels of chemicals and organisms in the samples are compared with the WQI levels for safety and health of the people. The WQI is a composite measure of

different chemicals and organisms in the water and whether the water quality is safe for particular uses. The WQI incorporates three elements:

- scope - the number of variables that do not meet the water quality objectives;
- frequency - the number of times that variables do not meet the objectives; and
- amplitude - the amount by which the objectives are not being met.

The WQI ratings provide a measure of the quality of water in Saskatchewan's rivers and allow a comparison of results over time. However, a limited number of samples are taken in any year and this, as well as changes in water levels and river flow from year to year, can produce significant annual changes in the index. To provide a more meaningful picture of longer term change that is still sensitive to underlying changes, the WQI for rivers has been presented as a three-year mean. Water quality data to support a 2006-2008 index calculation were not available for all monitoring sites listed at the time of this report and therefore calculated WQI values were provided for 2005-2007.

From these elements, the WQI produces a score between 0 and 100. The government has limited direct control over the results of this broad measure of water quality. While the government regulates point source pollution, many human and natural factors can influence water quality.

The following descriptive categories are used to further explain the WQI results:

- Excellent: (value 95-100) - water quality is protected with a virtual absence of threat or impairment; conditions very close to desirable levels. These index values can only be obtained if all measurements are within objectives virtually all of the time.
- Good: (value 80-94) - water quality is protected with only a minor degree of threat or impairment; conditions rarely depart from desirable levels.
- Fair: (value 60-79) - water quality is usually protected but occasionally threatened or impaired; conditions sometimes depart from desirable levels.
- Marginal: (value 45-59) - water quality is frequently threatened or impaired; conditions often depart from desirable levels.
- Poor: (value 0-44) - water quality is almost always threatened or impaired; conditions usually depart from desirable levels.

Number and percentage of municipalities with bylaws in place to protect their drinking water supplies

Table 17: Number and percentage of municipalities with bylaws in place to protect their drinking water supplies

Baseline December 2005		December 2006		December 2007		December 2008	
Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
178	22	178	22	181	23	182	23

Source: Ministry of Municipal Affairs

The number of municipalities with bylaws in place to protect their drinking water supplies is a direct indication of the level of municipal protection of water sources.

In 2008, one municipal planning bylaw with drinking water protection provisions was prepared. The per cent of the urban and rural municipalities that have some form of water management policy contained in their community planning bylaws has increased to 23 per cent (13 per cent with mandatory provisions and 10 per

cent with permissive or discretionary provisions). There should be more municipalities establishing bylaws with water source protection provisions in the near future, as a result of implementing the new *Planning and Development Act, 2007*, establishing statements of provincial interest in land use that include municipal water source protection, the increased need for planning for growth in Saskatchewan and the work of the Municipal Capacity Development Program.

Key Area: Citizens and consumers trust and value their drinking water and the operations which produce it

Theme: Consumers value quality water and are willing to pay for it

Saskatchewan residents are not always aware of the cost of providing safe drinking water. Protection of source waters, the ability to treat source water and ensure sustainable supplies is dependant on consumers that recognize the value of water and are willing to pay for it at present and in the future. The following is a summary of activities which were conducted during 2008-09 and the related achievements in working to ensure that consumers value quality water and recognize the need to pay for it.

Results - Consumers value quality water and are willing to pay for it

- The Ministry of Environment advanced educational efforts on water cost and value directly through distribution of brochures and at water related workshops and presentations on drinking water and wastewater management and through the SaskH2O website. These documents are distributed directly during waterworks inspections or provided electronically (at http://www.SaskH2O.ca/DWBinder.asp). The SaskH2O website also continues to remain up-to-date and is offered as an important educational and information source for the public.

- The Ministry of Environment participated in the SWWA annual convention in November 2008 including the trade show as a means to further understanding of the importance of operator certification. Ministry staff provided the key address at the convention as a means to convey direction and developments in the water and wastewater regulatory framework. The ministry also continues to support education efforts at the SARWP annual meeting and trade show in 2008 by means of a presentation to delegates and provision of information and documents. The ministry also assisted with the planning and delivery of a northern water workshop in April 2008.

- On a bi-annual basis, SaskWater will poll customers on key customer satisfaction measures including water quality, price and access to information.

Measurement of Results

Per cent of survey respondents indicating that they are willing to pay more for their drinking water

Table 18: Per cent of survey respondents indicating that they are willing to pay more for their drinking water

December 2001	May 2003	March 2005	March 2006	May 2007	February 2008	May 2009	Change
61	61.9	68	70.8	67.8	68.8	66.5	↓2.3

Source: Ministry of Environment Polling Results – May 2009

Based on a May 2009 poll conducted by the Ministry of Environment, 66.5 per cent of people polled are willing to pay more to improve their drinking water (strongly agree or agree) (Table 18). This value is 2.3 per cent less than the previous poll in February 2008 and is 5.5 per cent greater than the December 2001 poll results. The polling results continue to show ongoing public recognition of the value of water or willingness to pay for it at levels relatively consistent with polling results since March 2005. These polling results may be related to the high level of confidence in safety of drinking water, may be influenced by ready access to information on drinking water quality, greater profile of water related issues in the media or a high profile of precautionary drinking water advisories and emergency boil water orders showing government is working to improve drinking water management. How consumers value quality water and their willingness to pay for it is an indication of their understanding of the importance of safe drinking water and the true cost to produce it.

Theme: Citizens and consumers trust the quality and reliability of their drinking water systems and are confident in the regulatory system

Consumer trust in drinking water and regulatory systems that govern them is vital to ensuring the long-term sustainability of waterworks. Consumers who trust the quality and reliability of their water supplies are more willing to support the production of safe drinking water in the future. Release of polling results also bolsters transparency and public trust. The following is a summary of activities which were conducted during 2008-09 and the related achievements in working to improve citizen and consumer trust in the quality and reliability of their drinking water systems and confidence in the regulatory system.

Results – Citizens and consumers trust the quality and reliability of their drinking water systems and are confident in the regulatory system

- The Ministry of Environment conducted polling to determine public opinion associated on drinking water safety shortly after the end of the 2008-09 fiscal year. The most recent May 2009 omnibus polling results show the measurement of results. Public opinion polling remains as an important mechanism in determining the level of success in attaining government's safe drinking water goals.

- The Ministry of Environment continued to advance educational efforts, water treatment workshops and consumer notification initiatives during the 2008-09 fiscal year as a means to increase consumer and water system owner/operator knowledge of drinking water related issues. Information was provided through fact sheets on water conservation, by means of discussion with waterworks owners and through the SaskH2O website (http://www.SaskH2O.ca) as a means to help increase consumer confidence in their water supplies.

Measurement Results

Per cent of survey respondents indicating that they are very or somewhat confident in the quality of their tap water

Table 19: Per cent of survey respondents indicating that they are very or somewhat confident in the quality of their tap water

December 2001	May 2003	March 2005	March 2006	May 2007	February 2008	May 2009	Change
72	87	86	87.3	82.6	86.6	89.9	↑ 3.3

Source: Ministry of Environment Polling Results – May 2009

Based on a May 2009 poll conducted by the Ministry of Environment, 89.9 per cent of people polled strongly agreed or agreed they are confident in the safety of their own drinking water (Table 19). These polling results show a high level of confidence and represent an increase of 3.3 per cent from February 2008. The results are 17.9 per cent greater than December 2001 when 72 per cent of people surveyed were very or somewhat confident in the quality of their tap water. Actions such as consumer education efforts, waterworks inspections, implementation of water quality standards, water workshops and consumer notification help build confidence in the safety of drinking water at a relatively high level in excess of 80 per cent. Ongoing attention to these elements of drinking water protection will help to maintain the high level of public confidence in safety of drinking water in the future. The measure is important since it provides an indication of how efforts to ensure safe drinking water are progressing.

Theme: Citizens have meaningful access to information about the quality of their water

Information on water quality is important in building public trust in water systems. Information must be understandable, current and readily accessible. To build full trust, information needs to be available both from the waterworks owner and the regulator. The following is a summary of activities which were conducted during 2008-09 and the related achievements in working to ensure citizens have meaningful access to information about the quality of their drinking water.

Results - Citizens have meaningful access to information about the quality of their water

- By April 21, 2008, 40 per cent of the municipalities submitted a copy of their public information on the financial sustainability of their waterworks to the Ministry of Municipal Affairs. This was the second year the applicable regulations including The Municipalities Regulations, The Northern Municipalities Public Reporting on Municipal Waterworks Regulations and The Cities Regulations were in effect. The ministry is currently assessing the policies and procedures for waterworks financial reporting, including how to improve public reporting.

- The Ministry of Environment has created a Drinking Water Quality Index (DWQI) as a means to convey complex water quality information to consumers. In 2008-09, the ministry initiated changes to the manner in which the DWQI is calculated based on the most recent water supply specific information. As of the end of the reporting period, work to complete this updating was still underway. Further information on site specific DWQI ratings are available at http://www.SaskH2O.ca/WaterInformationFactSheet_annualreport.asp.

- Each year municipalities are required to provide to the public key information on the financial sustainability of their waterworks, including the extent that revenues cover expenditures and debt payments. This information will help ratepayers understand the need for cost recovery rates. Cost recovery waterworks rates are more likely to be able to provide safe drinking water.

- SaskWater published its fourth Comprehensive Water Quality Report highlighting water quality parameters of all its service areas and is available at http://www.saskwater.com/MediaCentre/Publications.asp?sub=subPublications&type=Pub2009.

Measurement Results
Number of system owners that publicly release water quality results

Table 20: Number of system owners that publicly release water quality results

March 2002	March 2003	March 2004	March 2005	March 2006	March 2007	March 2008	March 2009	Annual Change
3	118	359	508	494	511	637	653	↑16

Source: Ministry of Environment – Environmental Management System

As of March 31, 2009; 653 of waterworks owners publicly released water quality results to the consumers that they serve (Table 20). This value represents a significant increase since the 2007-08 fiscal year. Notification of consumers is required on an annual basis for waterworks governed by the Ministry of Environment. The ministry will continue to pursue further progress on attainment of public reporting requirements during 2009-10 and beyond. The number of system owners that publicly release water quality results is a good way to determine if consumers have direct meaningful access to information about the quality of their water. Additional waterworks specific information on drinking water quality is also available from http://www.SaskH2O.ca/MyDrinkingWater.asp.

Theme: Reduced consumption of water

Reduced consumption of water is important in minimizing costs and thereby properly valuing water. Water conservation is also necessary to protect water source quality and abundance, particularly in time of increased demand. The following is a summary of activities which were conducted during 2008-09 and the related achievements in working to reduce consumption of water.

Results – Reduced consumption of water

- The Saskatchewan Watershed Authority led implementation of water conservation practices, including implementation of the Provincial Toilet Replacement Rebate Program

  Implementation of water conserving practices is actively being pursued by the Saskatchewan Watershed Authority through public education and collaboration with municipalities, the non-profit sector and other provincial agencies. Partnerships with the cities of Humboldt and Yorkton, the Saskatchewan Environmental Society, SaskEnergy and SaskWater have resulted in increased awareness and uptake of water conservation practices.

- Development of guidelines for the research, development and commercialization of water reuse technologies has also been initiated as a joint effort between the Ministry of Health, the Ministry of Environment, Enterprise Saskatchewan and the Authority. Many of these programs have been made possible through partnership with the Ministry of Environment and the Go Green Fund.

- SaskWater teamed up with members of the Saskatchewan Roughriders to present Sustainability Pep Rallies and Water Seminars for students in 11 Saskatchewan communities. The program included school-wide pep rallies followed by water seminars under the theme "Water and its Relation to Sustainability" offered by Saskatchewan Roughrider players to grade five and six students. In May 2008, events took place in the following SaskWater customer communities: Aberdeen, Bruno, Warman, Martensville, Wakaw, Cudworth, Bellevue, St. Louis, Muenster, Humboldt and Annaheim.

- In 2008, SaskWater launched a water conservation campaign funded by a $50,000 grant from the Saskatchewan Watershed Authority. The campaign is split between a leak detection workshop and general water conservation messaging.

Measurement Results

Average per capita consumption [gallons per capita per day]

Table 21: Average per capita consumption [gallons per capita per day]

2000-01	2001-02	2002-03	2003	2004	2005	2006	2007	2008	Annual Change
80.3	80.7	77.4	81.2	73.2*	72.2**	74.6***	73.7****	N/A	↓ 0.9

N/A: Complete dataset is not available

* For 2004 the LCD (litres/Capita/Day) was 328 (72.15 gallons per day) and the weighted LCD was 437 (96.13 gallons).

** For 2005 the LCD was 328 (72.15 gallons per day) and the weighted LCD was 427 (93.92 gallons).

*** For 2006 the LCD was 339 (74.57 gallons per day) and the weighted LCD was 451 (99.21 gallons).

*** For 2007 the LCD was 335 (73.69 gallons per day) and the weighted LCD was 444 (97.66 gallons).

Source: Saskatchewan Community Water Use records for 2007, published June, 2008

Measuring the municipal per capita water consumption provides for total annual urban water use (in-home, business and municipal irrigation) within communities. The annual consumption is affected by summer irrigation demands, which vary between wet and dry years causing the performance measure to vary between years. However, because the goal of water conservation is to become more efficient in all water uses, this is a good measure of water conservation in the urban setting. The Saskatchewan Watershed Authority does not have direct control over this measure but, through water conservation programs, does influence the measure.

This measure is computed by summing the Litres per Capita per Day (LCD) for each community and dividing by the number of communities. The weighted LCD is computed by summing the yearly water consumption for each community and dividing by the total population and 365 days. The Saskatchewan Community Water Use Records maintained by the Saskatchewan Watershed Authority is the dataset used in this determination. The change in the water consumption rate is attributed to the natural annual variability found in water consumption records and climatic influences on water use. As the water conservation plan has only recently been implemented, it is not anticipated that a measurable decrease in water use will be observed for several more years.

A complete dataset for 2008 is not available at the time this report was prepared. The database source of the performance results for this measure has a time lag of about six months; January 1 to December 31 2008 data and will be available in July 2009.

Reduction of water consumption is partly the result of promotional efforts by the Saskatchewan Watershed Authority as well as greater general emphasis through application of the drinking water awareness efforts on the true value of drinking water quality. Over the 2005 to 2008 period, brochures that focus on water use in and around the home were distributed by the Ministry of Environment to help reduce water consumption by domestic water users.

2008-09 Financial Overview

Actual expenditures relating to drinking water management in 2008-09 were $53.756 million, which was $1.553 million higher than the budgeted expenditures of $52,203 million. This net variance is primarily attributable to over expenditure on the Municipal Rural Infrastructure Fund (MRIF).

Within the Ministry of Environment, under expenditures were the result of vacancies, delayed staffing and secondments in comparison with a full staff compliment of 36.7 FTEs. The Saskatchewan Ministry of Health FTE utilization for the Saskatchewan Disease Control Laboratory was at the full level of 17.5 FTE's during the reporting period. In addition to the FTEs within the Saskatchewan Ministry of Health, funding is provided to Regional Health Authorities for water related programs and surveillance. It is not possible to state the actual number of Regional Health Authority FTEs that are dedicated to water as a number of different disciplines (i.e. Medical Health Officers, Public Health Inspectors and Public Health Nurses) can become involved in water and or water related disease surveillance and issue-specific time is not tracked.

Under the Canada-Saskatchewan Municipal Rural Infrastructure Fund (MRIF), the Canada-Saskatchewan Building Canada Fund - Communities Component (BCF-CC), the Saskatchewan Infrastructure Growth Initiative (SIGI) and the Canada-Saskatchewan Infrastructure Program (CSIP), the Ministry of Municipal Affairs provides financial support to municipalities for priority drinking water and wastewater infrastructure improvements. In 2008-09, $18.945 million in federal and provincial funding was paid out under the MRIF, $25.689 million in provincial funding was paid out under BCF-CC, $171,000 in provincial funding was paid out under SIGI and $93,000 in federal and provincial funding was paid out under the CSIP. A list of 2008-09 approved projects for MRIF, BCF-CC and SIGI water and sewer projects is available on the internet (http://www.SaskH2O.ca/WaterInformationFactSheet annualreport.asp).

There are no revenues that arise specifically in relation to delivery of drinking water related activities for the Ministries of Environment, Municipal Affairs and Agriculture. Any revenues that arise from government commitments and activities relating to drinking water and source water protection within the Ministry of Health, SaskWater or the Saskatchewan Watershed Authority are reported within the annual reports for each of those participating agencies.

Expenditures

The following table outlines information on the actual and budgeted expenditures based on original 2008-09 and revised estimates relating to water management. Funding for water management activities comes from various government ministries and agencies and is contained in their respective budgets. Variance explanations have been provided for all variances that are greater than $5,000.

Ministry or Agency	Estimates Budget ($000s)	Actual Expenditure ($000s)	Variance Over (Under) ($000s)
Ministry of Environment – Total	**3,353**	**3,338**	**(15)** [1]
Saskatchewan Watershed Authority - Total	**7,256***	**7,256**	**0**
Ministry of Municipal Affairs			
- CSIP**	166	93	(73)
- MRIF	15,407	18,945	3,538
- BCF-CC	24,156***	25,689	1,533
- SIGI	480	171	(309)
Ministry of Municipal Affairs - Total	**40,209**	**44,898**	**4,689** [2]
Ministry of Health			
Regional Health Services			
- Regional Health Authorities (Health Regions) Base Operating Funding	476****[3]	476	0
- Regional Targeted Programs and Services	30	44	14 [4]
- Regional Programs Support	0[3]	0	0
Saskatchewan Disease Control Laboratory – Environmental Services	879	785	(94) [5]
Ministry of Health - Total	**1,385**	**1,305**	**(80)**
Total	**52,203**	**56,797**	**4,594**

* Expenditures shown are grants from the General Revenue Fund to the Saskatchewan Watershed Authority for these programs.

** The CSIP program was transferred to the Ministry of Highways and Infrastructure as per Order in Council on November 21, 2007.

*** This amount includes the supplementary estimates of $31.6 million.

**** This amount does not include additional funding provided to Health Regions to offset increases to salaries and benefits through collective bargaining agreements.

Explanations of Major Variances

[1] Under expenditure is the net result of increased funding for the National Water Agreement and vacancy savings related to prolonged staffing activities encountered by Ministry of Environment, Drinking Water Quality Section during the fiscal year.

[2] The 2008-09 budget provided an estimated $166,000 under CSIP, $15.407 million under the MRIF, $24.156 million under BCF-CC and $480,000 under SIGI for water and sewer projects. By the end of the

year, $93,000 was spent on the CSIP projects, $18.945 million on the MRIF projects, $25.689 million on the BCF-CC projects and $171,000 on the SIGI project. CSIP, BCF-CC and SIGI all came in under budget for 2008-09 even though there was more money expensed for water and sewer projects than initially estimated in BCF-CC. Over expenditure on MRIF is due to municipalities completing their projects by the original completion date of March 31, 2009. In the summer of 2008, the federal and provincial governments signed an amendment to the MRIF Agreement which extended the timeline for applicants to complete their approved projects to March 31, 2010. In the case of some projects, the full amounts budgeted were not spent because many projects were delayed due to the unavailability of contractors. The amounts have been rolled over to the following year. The actual cost of some projects came in below the estimated cost and a few projects were withdrawn due to escalating costs. Responsibility for the CSIP program was transferred to the Ministry of Highways and Infrastructure at the conclusion of the 2007-08 year.

[3] $20,000 was transferred from Regional Programs Support to Regional Health Authorities' base operating funding (Mamawetan Churchill River Regional Health Authority) to address costs associated with inspection of remote health regulated water supplies in the far north.

[4] $14,000 over-expenditure in Regional Targeted Program and Services for a consulting contract for the project entitled "A Review of Approaches for Subdivisions where Onsite Sewage Systems are Proposed."

[5] $94,000 under-expenditure for the Saskatchewan Disease Control Laboratory is mainly due to the elimination of two equipment maintenance agreements and change in two test methodologies, which decreased the reagent for the tests.

Revenues

There are no revenues that arise specifically in relation to delivery of drinking water related activities for the Ministries of Environment, Municipal Affairs and Agriculture. Any revenues that arise from government commitments and activities relating to drinking water and source water protection within the Ministry of Health, SaskWater or the Saskatchewan Watershed Authority are reported within the annual reports for each of those participating agencies.

For More Information

For an electronic copy of this report or more information on the status of drinking water in Saskatchewan visit:
www.SaskH20.ca/news.asp or
http://www.SaskH2O.ca/WaterInformationFactSheet_Drinking_AnnualReports.asp

Or contact:

Municipal Branch
Environmental Protection Division
Saskatchewan Ministry of Environment
3211 Albert Street
REGINA, SK S4S 5W6
Telephone: (306) 787-6504
Toll free: 1-800-567-4224

Feedback on the key actions and results may also be provided to the Ministry of Environment through the contact information immediately above.

Next year's annual report will address status of drinking water for the 2009-10 fiscal year.

Appendix A: List of Acronyms Contained in this Document

ABC	Association of Boards of Certification
ADD	Provincial Council of Agriculture Development and Diversification (ADD) Boards
ATAP	Advanced Technologies Applications
BCF-CC	Canada-Saskatchewan Building Canada Fund - Communities Component
BMP	Beneficial Management Practices
CAC	Certification Advisory Committee
CCME	Canadian Council of Ministers of the Environment
CES	Consulting Engineers of Saskatchewan
CESI	Canadian Environmental Sustainability Indicator
CEU	Continuing Education Units
COM	Certified Operations and Maintenance
CSIP	Canada-Saskatchewan Infrastructure Program
DWQI	Drinking Water Quality Index
EBWO	Emergency Boil Water Order
EFP	Environmental Farm Plans
EMS	Environmental Management System
EPO	Environmental Project Officer
FSIN	Federation of Saskatchewan Indian Nations
FTE	Full Time Equivalent
GUDI	Groundwater Under Direct Influence
INAC	Indian and Northern Affairs Canada
LCD	Litres per Capita per Day
MIEX	Magnetic Ion Exchange
MRIF	Canada-Saskatchewan Municipal Rural Infrastructure Fund
MWWE	Canada-wide Strategy for Municipal Waste Water Effluent
NTU	Nephelometric Turbidity Units
OCB	Operator Certification Board
OCP	Official Community Plans
PCAB	Provincial Council of Agriculture Development and Diversification (ADD) Boards
PCAP	Prairie Conservation Action Plan
PDWA	Precautionary Drinking Water Advisory
PPWB	Prairie Provinces Water Board
RHA	Regional Health Authority
RWQP	Rural Water Quality Program
SARM	Saskatchewan Association of Rural Municipalities
SARWP	Saskatchewan Association of Rural Pipelines
SCADA	Supervisory Control and Data Acquisition
SCWMC	Spirit Creek Watershed Monitoring Committee
SIAST	Saskatchewan Institute of Applied Science and Technology
SIGI	Saskatchewan Infrastructure Growth Initiative
SUMA	Saskatchewan Urban Municipalities Association
SWWA	Saskatchewan Water and Wastewater Association
UV	Ultraviolet
WEBs	Watershed Evaluation of Beneficial Management Practices sites
WQI	Water Quality Index

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